A 21st Century Roadmap for Advancing America's Health: The Path from Peril to Progress

The Commission on U.S. Federal Leadership in Health and Medicine: Charting Future Directions

Center for the Study of the Presidency and Congress

A 21ST CENTURY ROADMAP FOR ADVANCING AMERICA'S HEALTH:

THE PATH FROM PERIL TO PROGRESS

A Report of the

COMMISSION ON U.S. FEDERAL LEADERSHIP IN HEALTH AND MEDICINE: CHARTING FUTURE DIRECTIONS

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Commission Co-Chairs:

Susan J. Blumenthal, MD, MPA
Director, Health and Medicine Program
Center for the Study of the Presidency & Congress
Former U.S. Assistant Surgeon General

Denis A. Cortese, MD
Emeritus President and CEO, Mayo Clinic
Director, Healthcare Delivery & Policy Program
Arizona State University

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Center for the Study of the Presidency and Congress
1020 Nineteenth Street, NW, Suite 250
Washington, D.C. 20036
Phone: 202-872-9800
Fax: 202-872-9811
www.thePresidency.org

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PREFACE

Build today, then strong and sure
With a firm and ample base;
And ascending and secure
Shall tomorrow find its place.

Henry Wadsworth Longfellow (1850)

With the historic passage of the *Patient Protection and Affordable Care Act* and the *Health Care and Education Affordability Reconciliation Act,* signed into law on March 23, 2010 and March 30, 2010 respectively, the United States has begun the process of forming a firm and ample base to build a modern health care system that is more efficient, equitable, and effective for all Americans. Successfully navigating this transformation is essential because America's health system is in crisis today, threatening the health of its citizens, economy and national security. The United States spent 17.3% of GDP on health in 2009[1] but ranks only 49th on life expectancy worldwide,[2] patients receive the correct treatment just 55% of the time,[3] and significant variability exists in the quality of care delivered across our country.

The passage of health reform signifies the beginning of a challenging road ahead to fully implement the broad range of measures needed to improve health in our nation. This will be a historic and exciting journey with opportunities for innovation and groundbreaking accomplishment. President Barack Obama joins other Presidents before him who have charted new directions for advancing our country's health. President Abraham Lincoln established the National Academy of Sciences; President Harry S. Truman's foreign policy inspired the creation of the United States Agency for International Development (USAID); President Lyndon B. Johnson signed legislation that established Medicaid and Medicare; and President William J. Clinton created the State Children's Health Insurance Program (SCHIP). President Obama and the U.S. Congress have built upon these legacies with the *Patient Protection and Affordable Care Act.* Now, the Federal government must work in partnership with the American people to make America the healthiest nation in the world.

A 21st Century Roadmap for Advancing America's Health: The Path from Peril to Progress, the second report issued by the *Commission on U.S. Federal Leadership in Health and Medicine: Charting Future Directions,* marks the passage of recent landmark health reform legislation and provides a roadmap of recommendations for a comprehensive re-engineering of the U.S. health system. First convened in November 2008, the Commission's objective is to serve as a resource outside of the Federal government to the Administration, Congress and the American public for strengthening our nation's health system. Comprised of health experts from the public and private sectors, including health policy, academia, research, and media, the Commission is committed to non-partisan analysis of the key health challenges and opportunities of our time.

Expanding upon the work of its first report, *New Horizons for a Healthy America: Recommendations to the New Administration*, published in April 2009, the Commission has since formed four Working Groups on: (1) re-engineering America's health care system; (2) advancing public health in the United States; (3) promoting global health and health diplomacy, and (4) strengthening U.S. medical and public health research. Drawing on the findings from its Working Groups and addressing synergies between them, the Commission has developed recommendations in this report that provide a guide for a comprehensive strategy to advance health in America and worldwide. The

Commission's recommendations reach *beyond* health insurance reform to address additional critical components of a 21st century health care system for our nation, which include investing in research, strengthening public health and prevention, re-engineering the delivery system, and advancing global health. Given the ongoing nature of the health reform process, the Commission prepared many of its recommendations before the *Patient Protection and Affordable Care Act* and the *Health Care and Education Affordability Reconciliation Act* were enacted. Following the passage of these bills, adjustments have been made to this report given these developments. The Commission is gratified that many of the suggestions in its first report, *New Horizons for a Healthy America: Recommendations to the New Administration*, were reflected in the *Patient Protection and Affordable Care Act* and the *American Recovery and Reinvestment Act (ARRA)*, in addition to informing several new Administration initiatives.

Key Commission recommendations contained in the recent legislation involve implementing "health in all policies" across Federal agencies and departments and strengthening prevention programs through several public health measures, including the establishment of a Prevention and Public Health Fund, a Federal Coordinating Council, and national education campaigns on health promotion, disease prevention, and tackling the childhood and adult obesity epidemics. Additional suggestions from the Commission addressed in recent health reform legislation include: expanding insurance coverage to all Americans, establishing innovative service delivery demonstration programs in Medicare and an Innovation Center at the Center for Medicare and Medicaid Services (CMS), emphasizing quality, developing strategies to address health disparities, establishing a health information technology infrastructure, and forming a Comparative Effectiveness Institute to increase effectiveness and reduce waste in health delivery. The Commission's call for increased funding for research at National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and the Agency for Healthcare Research and Quality (AHRQ) was addressed by the *ARRA*'s investments in these agencies, although sustained funding is urgently needed to ensure progress and the career development of the next generation of scientists. Additionally, the report's vision for developing a long-term, integrative global health strategy to prevent and control disease, address maternal and child health, monitor progress, and coordinate global health initiatives across Federal agencies strongly correlates with many of the goals of the President's new Global Health Initiative. Taken together, the Commission's proposals are reflected in many facets of new U.S. health policy and legislation, which should move America in a healthier direction.

Applying Longfellow's quote to health care underscores that the process of building a quality health system is an enduring task, but one that has tremendous promise for progress. The Commission is honored to have been influential in the health reform process and will continue its efforts to improve America's health and health care system, joining with the many public and private sector organizations and individuals that have a stake in this critical component of America's future. The major message of this report is that Federal leadership must mobilize the expertise, resources, and commitment of all government agencies, in partnership with the American people, to improve health in the United States and worldwide. This document provides a roadmap for actions emphasizing both personal and social responsibility to ensure a healthier future for us all.

Susan J. Blumenthal, MD, MPA
Commission Co-Chair

Denis A. Cortese, MD
Commission Co-Chair

SUMMARY OF KEY RECOMMENDATIONS

America's health care system is in crisis. Despite spending 17.3% of its GDP on health in 2009,[4] far more than any other industrialized nation,[5] the U.S. health care system is inefficient, inequitable, and ineffective for many people. Moreover, health care costs are escalating in America and there is significant variability in how care is delivered. In 2009, national health spending grew 5.7%, up from 4.4% in 2008.[6] Of U.S. health expenditures, 30-50% is wasted on the overuse, underuse, and misuse of medical and administrative services.[7] Patients receive the recommended treatment just 55% of the time,[8] and America ranks only 49th on life expectancy worldwide.[9] Significant health disparities exist for different segments of the U.S. population. Furthermore, 46 million Americans are currently without health insurance, and the numbers continue to grow.[10] In 2007, over 60% of bankruptcies in the United States were linked to an inability to pay medical bills.[11] The bottom line: Americans are paying far too much on health care for far too little health in return.

LIFE EXPECTANCY OF SELECTED COUNTRIES, 2009

Rank	Country	Years
1	Macau	84.36
2	Andorra	82.51
3	Japan	82.12
7	Australia	81.63
8	Canada	81.23
9	France	80.98
10	Sweden	80.86
11	Switzerland	80.85
14	Iceland	80.67
18	New Zealand	80.36
19	Italy	80.20
23	Spain	80.05
24	Norway	79.95
26	Greece	79.66
27	Austria	79.50
30	Netherlands	79.40
31	Luxembourg	79.33
32	Germany	79.26
33	Belgium	79.22
36	United Kingdom	79.01
37	Finland	78.97
40	Korea, South	78.72
44	Denmark	78.30
46	Ireland	78.24
47	Portugal	78.21
49	**United States**	**78.11**
60	Czech Republic	76.81
70	Mexico	76.06
74	Poland	75.63
79	Slovakia	75.40
105	Hungary	73.44
121	Turkey	71.96

Source: The CIA World Factbook, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2102rank.html>

In response to these systemic problems, policymakers have tended to focus on the specifics of health financing and access to medical services. The Administration and Congress have worked tirelessly to pass landmark health reform legislation with the *Patient Protection and Affordable Care Act* (H.R. 3590) and its associated amendments included in the *Health Care and Education Affordability Reconciliation Act* (H.R. 4872). This legislation package provides a patient's "bill of rights," insurance coverage on an unprecedented scale, and measures to significantly reduce health care costs over the next decade.

However, achieving a healthy America involves more than having insurance, providing access to care, or enacting measures for cost containment. Prior to the passage of this health reform legislation package, the *American Recovery and Reinvestment Act of 2009* (*ARRA*) had already helped to significantly alter the health landscape with its investments in several key elements required to transform the health care system, including developing a health information technology infrastructure, that must now be effectively implemented. Our nation now has a foundation on which to build a *comprehensive framework* in which *health* is put back into the health care system. To achieve this goal, progress must be made in four key areas: (1) re-engineering America's health care system, (2) strengthening the public health infrastructure to underscore the power of prevention and community health, (3) promoting global health and health diplomacy, and (4) securing sustained funding for scientific and medical research. To ensure "Health in all Policies," Federal agencies must mobilize the resources of the full range of government agencies, in partnership with the American people, to improve health in the United States.

1. Re-engineering America's Health Care System

- Key Issues: To improve health and health delivery in the United States as health reform legislation is enacted, *value* must be the cornerstone of a re-engineered system to improve quality, minimize waste, and lower costs. The goal of reform efforts must be to ensure that America has the highest value health care system in the world. This can in part be accomplished by adopting new value-based payment methods, promoting team-based medicine, strengthening primary care, and conducting comparative effectiveness (CER) and health systems research, among other measures that have been included in the legislation but have not been widely publicized. Another key component for repairing the currently fragmented health system is implementing a health information technology (HIT) infrastructure. The use of HIT with electronic health records (EHRs) will help to improve quality and medical decision making, facilitate CER research, evaluate health outcomes, reduce medical errors, and decrease costs. A historic investment of $19 billion was made through the *ARRA* (compared to $111 million in the previous fiscal year) to build this HIT infrastructure.

- Recommendations: (1) Shift incentives from the current payment paradigm towards "paying for value" (paying for results); (2) develop a comprehensive national strategy for comparative effectiveness research (CER) to establish an evidence base that helps guide clinical and consumer decision making about interventions including medications, devices, treatments and prevention strategies; (3) establish "Health Innovation Zones" to foster novel methods of system improvement; (4) develop an interoperable health information technology system including electronic medical records that is available to all health care providers and increases efficiency, effectiveness, and value in the health care system; (5) transition towards team-based medical care; (6) ensure that patients have a primary physician who coordinates care and communication among all other providers; (7) eliminate health disparities by targeting interventions to the needs of diverse population groups and enhance education and training for culturally competent care; (8) foster medical school education reform measures to address primary care physician and nursing shortages, teach team-based medicine, and emphasize the importance of prevention; (9) establish a training curriculum, academic discipline, and promotion track for the study of health care delivery systems; (10) establish and implement various demonstration programs to provide innovation in Medicare reform and synergies between federal health care programs; (11) connect hospitals and clinics with their communities; and (12) establish an analogous center to the "Federal Aviation Agency" in one of the Federal health agencies, with state-based regulatory mechanisms for reporting and reducing medical errors in the United States.

2. Advancing Public Health in the United States

- Key Issues: Strengthening public health infrastructure and emphasizing the power of prevention are essential for comprehensive health care reform so that *health* is put back into the health care system. Today, more than 75% of health care costs in the United States result from chronic diseases, many of which are preventable.[12] Furthermore, over a million Americans die prematurely every year due to health damaging lifestyle habits, especially tobacco use, poor nutrition, lack of physical activity, and abuse of alcohol.[13] Currently, one out of five American adults smokes tobacco,[14] and 67% of American adults are overweight or obese.[15] The rates of severe childhood and adolescent obesity have tripled over the past 25 years.[16] If these trends

continue, for the first time in our nation's history, the current generation of young Americans may not be as healthy or live as long as their parents. Despite such dire predictions, current government and private sector support for prevention and public health account for only 3-5% of total U.S. health expenditures.[17,18,19] Investing in prevention is a cornerstone of improving quality health, extending life expectancy, and reducing costs, and is an essential component of health care reform efforts.

- Recommendations: (1) Establish "Health in All Federal Policies" and strengthen coordination across all Federal agencies. The President and First Lady should serve as health champions, calling on all Americans and sectors of society to work together to make the United States the healthiest nation in the world; (2) emphasize public health and prevention in the implementation of health care reform efforts; (3) underscore the importance of both enhanced personal and social responsibility; (4) increase policymaker support for prevention by making an economic case for its cost-effectiveness and social value; (5) extend the Congressional Budget Office's (CBO) scoring metrics timeframe to 20 years to provide a more accurate estimate of the long-term cost savings from prevention programs; (6) launch a national health education campaign and grant program to promote healthy lifestyles, including smoking and obesity prevention, with a special focus on children and adolescents; (7) implement and expand healthy nutrition, physical activity and smoking prevention specific policies at the federal level; (8) strengthen the public health workforce capacity; (9) expand the mission and recruitment mechanisms for the U.S. Public Health Service Commissioned Corps; and (10) advance the nationwide implementation of best practices in public health through integrated community and population-based efforts.

3. Promoting Global Health and Health Diplomacy

- Key Issues: In the 21st century, America's health is global health, and global health is America's health. Global health has humanitarian, economic, and national security implications. Yet, federal investments in global health account for less than one percent of the U.S. budget. In order to most effectively direct U.S. resources towards improving global health, a U.S. Federal inter-agency collaborative framework for supporting global health initiatives, using health diplomacy as a foreign policy tool, and strengthening as well as coordinating programs and investments in key government agencies should be established. U.S. global health assistance should focus on an *integrative* and collaborative approach to combating diseases worldwide, strengthening health systems, and helping to meet the United Nations Millennium Development Goals (MDGs).

- Recommendations: (1) Create a 21st century U.S. Strategy for Global Development and Health Assistance with health diplomacy as a central tool of "smart power"; (2) develop an integrated U.S. global health policy architecture and Inter-Agency collaborative framework for supporting the President's Global Health Initiative; (3) establish a new accountability architecture for the foreign aid assistance business model to produce a more demand-driven, performance-based delivery system with greater transparency; (4) build on the successes of PEPFAR and enhance this program; (5) work with multilateral international institutions to create a focus on health systems strengthening to ensure sustainability; (6) invest in health workforce development in science, medicine, and public health in the developing world, and (7) promote collaboration on global health between and among the public and private sectors.

4. Strengthening U.S. Medical and Public Health Research

- Key Issues: An essential ingredient for securing America's future in the 21st century is investing in scientific research. However, U.S. funding for biomedical and public health research has been erratic in recent years – resulting in a "real" decline in the amount of funding that is available to support medical breakthroughs and a new generation of scientists. Investing in research (including basic, behavioral, social science, health care delivery, comparative effectiveness, public health, and translational research) is the foundation for all health and medical interventions, serves as a cornerstone of health care reform efforts, and is an engine of economic and societal progress.

- Recommendations: (1) Create a National Strategy for sustaining balanced investments in basic and applied science research. Biomedical research funding at the National Institutes of Health (NIH) should be increased in time beyond the short term boost provided by the stimulus funds in the *American Recovery and Reinvestment Act (ARRA)*[20] and the Administration's FY 2011 budget proposal;[21] (2) increase funding for basic, behavioral and prevention research at NIH; (3) invest in human capital and academic education reform to drive high–impact, innovative research and fund the next generation of scientists; (4) foster the development of health care delivery systems research; (5) launch the Patient-Centered Outcomes Research Institute and further elaborate its mission. Create an overarching coordinating mechanism for comparative effectiveness and health care delivery research in the Federal government across agencies including the AHRQ, NIH, CDC, FDA, VA, and DoD to stimulate studies in this field, accelerate the dissemination of findings to practitioners, policymakers and the public, and facilitate CER informing policy recommendations; (6) establish a Center for Public Health Research at the CDC to support science in this area, as well as foster interdisciplinary studies that examine the effects of multiple sectors, such as economic status, housing, food and transportation policies, on health. A joint framework involving the CDC, NIH, and AHRQ to increase the knowledge base on prevention, exploring the continuum from basic and behavioral research findings to application in community settings, should be considered; and (7) invest in global health research.

Summary

A comprehensive re-engineering of the U.S. health care system cannot be achieved by fragmented investments and reforms. A 21st century strategy for health reform in the United States must harness the commitment of all Americans and the power and resources of *all* sectors of society. It must involve both social and personal responsibility to achieve a healthier United States. All Americans should be able to live in communities in which they can achieve the best of health and well being, receive high quality, effective, and compassionate care when it is needed, and be protected from economic hardship due to medical expenses. Now is the time for individuals, families, schools, businesses, health care providers, scientists, foundations, and the government to work together to move our nation and world towards a healthier, more secure and prosperous future.

1. RE-ENGINEERING AMERICA'S HEALTH CARE SYSTEM

Introduction

"Knowing is not enough; we must apply. Willing is not enough; we must do." In penning these words, the poet Goethe reminds us that our intentions are only as good as the actions they inspire. Although the Administration and Congress have made historic progress to increase insurance coverage and access to health care as well as end discriminatory insurance practices, much still remains to be done to achieve a healthier America.

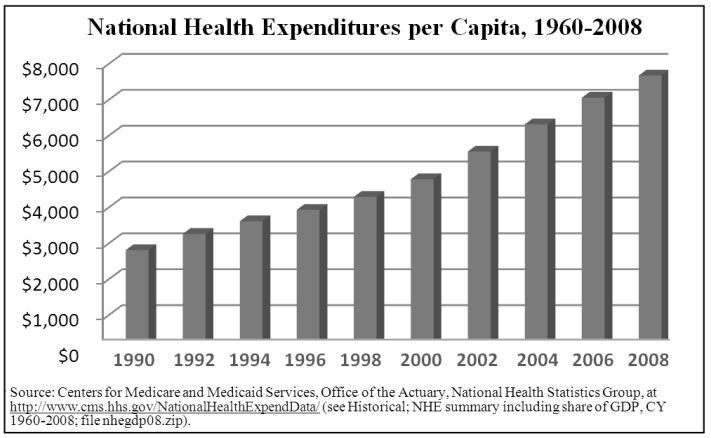
"Knowing is not enough; we must apply. Willing is not enough; we must do."
- Goethe

In 2009, the United States spent close to $2.5 trillion and 17.3% of its GDP on health,[22] far more than any other industrialized nation,[23] yet our country ranks 49th on life expectancy globally[24] and 37th in the World Health Organization's report on the health status of nations.[25] Moreover, Americans receive the correct treatment only 55% of the time.[26] In a nation with some of the world's most sophisticated medical treatments and resources, these statistics are unacceptable. The current economic crisis has severely strained America's health system. Employers have scaled back employee health benefits to maintain financial viability, forcing many workers to postpone needed medical care.[27] Simultaneously, high unemployment has weakened Americans' ability to pay for medical services: 72 million working-age people in the United States report hardship in paying their medical bills,[28] 46 million Americans currently lack health insurance,[29] and 60% of personal bankruptcies in 2007 were due to health care costs.[30]

While the passage in March 2010 of the landmark *Patient Protection and Affordable Care Act* and the *Health Care and Education Affordability Reconciliation Act* should help to alleviate some of these problems, the promise of legislation alone will not achieve a healthier America. To meet these challenges, we must fundamentally inject *value* into our health care delivery system by focusing on improving quality, minimizing waste, and lowering costs through adopting new value-based payment methods, promoting team-based medicine, and incentivizing prevention to improve both the quality and quantity of life for Americans. In doing so, we can put *health* back into the health care system.

The challenge of health reform is to revitalize the U.S. economy while meeting our moral obligation to ensure the right to *quality* health care for all Americans. Ten policy domains are central to these efforts: (1) greater emphasis on health promotion and disease prevention, (2) value-based delivery, (3) medical education and workforce development, (4) comparative effectiveness research, (5) innovative quality improvement, (6) health information technology, (7) team-based medical care, (8) provider payment system reform, (9) primary care infrastructure growth, and (10) improved management of federal and private sector health plans.

Federal leaders, health care professionals, policymakers, businesses, and the American public must harmonize their efforts, working together to establish an equitable, efficient and effective health system. This will require a combination of strategies including implementation of federal and state health reform legislation, public health measures, and the personal responsibility of all Americans to take meaningful steps towards a healthier future.



Source: Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group, at http://www.cms.hhs.gov/NationalHealthExpendData/ (see Historical; NHE summary including share of GDP, CY 1960-2008; file nhegdp08.zip).

Shift incentives towards "Paying for Value" in order to improve health outcomes and reduce costs. Health care costs are escalating in America. The Centers for Medicare and Medicaid Services (CMS) estimate that, without enacted system reforms, the average rate of health spending would outpace overall economic growth by 1.7 percentage points annually for the period from 2009-2019.[31] As health care costs continue to overwhelm America's economy, the U.S. Federal government (the single largest payer) should consider additional options (beyond what has been incorporated into health reform legislation) that explore the principle of "paying for value" in government-sponsored programs, including Medicare and Medicaid. The clearest path to promoting "value" (the health outcome per money spent)[32] relies on developing new definitions and metrics of success based on patient outcomes and the effectiveness of interventions. Paying-for-value, which means "paying for results" (linking payments to outcomes, safety, and service for lower healthcare expenditures) can serve as a self-organizing principle, helping to incentivize health care providers to adopt measures such as team-based medicine and health information technology, creating a culture in which each member of the health care team works to improve outcomes together. Such initiatives based on "paying for value" should deliver substantial savings for taxpayers, businesses, and the nation in the years ahead.

Develop and implement a comprehensive National Strategy for comparative effectiveness research (CER) to create an evidence base that will help guide clinical practice and community interventions in the United States. The United States spent $2.5 trillion on health care in 2009,[33] yet no centralized system exists to effectively evaluate the quality of the care that is delivered. Experts estimate that 30-50% of health expenditures in America today are wasted on overuse, underuse, and misuse of medical and administrative services.[34] The goal of CER is to evaluate the effectiveness of interventions to prevent, diagnose, treat, and monitor health conditions and disease,[35] as well as in the health care delivery system, to determine what works and for whom. CER studies are an important component of achieving "value" in the health care system. Another integral step is to widely disseminate the findings from comparative effectiveness research to health care providers, the public, and policymakers to help inform decision making. It is estimated that findings from CER (even if not incorporated into public insurance coverage decisions) could potentially reduce health care costs by $6 billion over a decade through indirect influences on the private sector.[36,37] CER's "value" outcomes measured should include survival, functional improvement, and medication and device side effects, as well as a variety of condition-specific and health delivery outcomes. Improvements in employee productivity and decreases in worker absenteeism should also be considered**.** Research registries must include a range of patients, including those with the most chronic and difficult to treat conditions. By using CER to better

define and measure outcomes, a "pay-for-value" system can evolve, leading to cost-effective improvements in safety, security, and patient health care delivery and outcomes.

On an organizational level, CMS is preparing for such comparisons by requiring hospitals to submit performance data on mortality, numerous inpatient and outpatient treatment measures, readmissions, and patient satisfaction. Hospitals that fail to comply could see their annual Medicare and Medicaid reimbursements decline by 2%.[38] These new measures will help incentivize hospitals to be more accountable for long-term outcomes and prompt greater investment in health information technology to gather such data. However, much more information from individual providers, patients, and other medical facilities will be needed in order realize true cost-savings and effectiveness.

To allow CER to advance these goals, a mechanism is needed to coordinate CER research programs across all federal agencies including AHRQ, NIH, CDC, DoD, and VA as well as to identify funding priorities. This would extend beyond the establishment of the independent, non-profit Patient-Centered Health Outcomes Research Institute in the *Patient Protection and Affordable Care Act*. The Institute established by the bill will be overseen by an appointed multi-stakeholder Board with the assistance of expert advisory panels composed of practicing and research clinicians, patients, experts in scientific and health services research and delivery, and other technical experts.[39] A National Strategy for CER should be an important component of the National Strategy for Quality Improvement developed in the *Patient Protection and Affordable Care Act*, which aims to enhance improvement in the areas of "health care services, patient health outcomes, and population health."[40] Areas of emphasis for CER should include translational and systems/operations research in order to achieve the greatest progress for the highest proportion of patients. CER should also address the needs of diverse populations, patient subgroups, and help medicine move away from a "one-size-fits-all" approach to treatment and prevention.[41] With regards to translational research, a standardized process for bringing innovative research findings to the bedside and to communities in a timely manner must be developed if the current 17 year science to service gap is to be eliminated.[42] This process must include engagement with the FDA to reduce the cost and unpredictability of the continuum from research discovery to clinical validation.

While support for comparative effectiveness research in the *Patient Protection and Affordable Care Act* and in the *American Recovery and Reinvestment Act of 2009* (which included a $1.1 billion allocation for comparative effectiveness research) are dramatic steps forward,[43] the establishment of an explicit, sustainable funding stream independent of current clinical and basic science research allocations is critical. AHRQ, the federal agency charged with improving the quality and safety of health care, had a $372 million budget in FY 2009.[44] ARRA provided an additional $300 million to AHRQ (as well as $400 million each to the National Institutes of Health (NIH) and the Office of the Secretary of Health and Human Services) for the purposes of comparative effectiveness research through FY 2010.[45] The Administration's FY 2011 budget proposal for the U.S. Department of Health and Human Services (HHS) allocates $286 million to AHRQ for CER.[46] However, further sustained funding is needed (possibly accomplished by a tax on health care revenues) to provide the predictability of support that this important research field requires.

Implement and prioritize funding for "Health Innovation Zones" to foster novel methods of system improvement. One possible path towards developing a high-value health care system involves the establishment of Health Care Innovation Zones, which would allow for federal and local demonstration of new ideas and promising projects that can be "scaled up." The *Patient*

Protection and Affordable Care Act incorporates the Commission's recommendation for such projects by establishing an Innovation Center within CMS to serve as a site for testing, evaluating, and potentially expanding payment reform models within Medicare, Medicaid, and S-CHIP that improve quality of care while reducing expenditures. Among the pilot programs to be implemented are models that establish payments to one type of a Health Care Innovation Zone, involving a cluster of providers (including a teaching hospital, physicians, and other clinical entities) jointly supplying a set of integrated health services while exploring "innovative methods for the clinical training of future health care professionals."[47]

Methods for course correction in such initiatives as new evidence emerges also must be developed. One possible mechanism, as proposed in the *Health Care Innovation Zone Pilot Act* (H.R. 3664), could involve the U.S. Department of Health and Human Services designating planning grants for various regions of the country that would then design their own solutions, based on integrating aspects of Medicare, Medicaid, and private insurance plans.[48] These grants should assist the community in identifying their own community priority areas and developing the resultant "next steps" for improvement. Additional support and a set of tools (lessons from previous successes where applicable, new payment practices, application of information technology, and operations research findings) to achieve those goals should be provided**.** However, barriers such as certain regulatory provisions, lack of resources for incorporating health information technology, and the evolving structure for CMS reimbursement rates would need to be addressed in order to successfully implement these Innovation Zone programs.

Develop an interoperable, patient-centered health information technology system available to all health care providers to increase efficiency, effectiveness, and value in the health care system. Currently, only 20.5% of physicians[49] and 8-10% of hospitals[50] employ basic electronic health records (EHRs) and far fewer fully or meaningfully employ health information technology (HIT) for the purpose of advancing care coordination, aiding clinical decision-making, and reporting health outcomes, among other practices.[51] The National Coordinator for Health Information Technology has emphasized that the goals of HIT are quality and efficiency, rather than simply providing computers and extra machinery for doctors' offices.[52] If used in innovative ways, the estimated savings from HIT expansion could reach $261 billion over 10 years.[53]

Acknowledging that HIT can only be effective if aligned with proper incentives, the ARRA designated $19.2 billion for HIT,[54] encouraging practitioners to meaningfully employ EHRs by providing them with Medicare and Medicaid incentive payments starting in 2011. Furthermore, those eligible professionals who do not "meaningfully" incorporate EHRs into their practices by 2015 will be penalized in certain circumstances.[55] Additionally, the *Patient Protection and Affordable Care Act* calls for an expansion of electronic physician quality reporting in Medicare with the "meaningful use" of EHRs, to collect data that will allow for linking incentive payments to quality outcomes in Medicare.[56] The Obama administration's FY 2011 budget proposal also includes $110 million to continue strengthening HIT policies, coordination and implementation.[57]

However, HIT's potential, as opposed to EHRs' alone, does not center solely on making patients' records more accessible, but rather on improving the information available for medical decision-making, collecting performance data, and ensuring that avoidable medical errors will be more difficult to occur. The comprehensive health reform package passed by Congress and signed by the President sets the stage for progress in these areas by envisioning a national strategy for overall quality improvement that is enhanced by the use of health IT and EHRs. Specifically, the law will

(1) enact national standards for electronic data submission and collection, as well as for reporting mechanisms, to increase transparency and reduce fraud; (2) develop a standardized set of rules for electronic funds transfers, health care payments, and health plan information to simplify health insurance administration with the use of IT; and (3) develop new state-based health information/data exchange networks with enhanced interoperability and security.[58]

The comprehensive health reform package sets the stage for progress by envisioning a national strategy for overall quality improvement, enhanced by the use of health information technology.

Data from EHRs should also be more directly incorporated into comparative effective research collection, thereby ensuring that the two systems synergistically build upon each other's progress while ensuring patient privacy protections. The *Patient Protection and Affordable Care Act* lays the foundation for such a system in calling for the development of an interoperable data network to collect and analyze health data on outcomes and effectiveness from multiple sources, including electronic health records.[59] Ideally, a joint EHR-CER system would be applied on a nationwide level, with all hospitals, providers and patients able to access their records in a seamless electronic framework, while addressing cyber-security and privacy concerns. A possible model might emerge from a pilot program launched by Kaiser Permanente and the U.S. Department of Veterans Affairs that is linking two of the largest EHR systems in the country.[60] ARRA's pledge of $44 million awarded to AHRQ (for Research Project Grants to improve the electronic data collection infrastructure for comparative effectiveness research) is an important step forward. [61]

Another action to increase adoption of HIT might include the development of individualized patient portals, which would provide enhanced access to personal medical records and health information, allowing patients to take a more active role in partnership with their doctors in their health care. The widespread implementation of HIT also would be accelerated by the adoption of the "pay for value" principle. HIT can assist in preventive medicine, chronic disease management, care coordination and medication management efforts in health systems where financial incentives have been realigned (as in Kaiser Permanente and the Geisinger Health System). However, in many health care delivery settings today, HIT services are often not reimbursed by insurance companies. The issues of HIT interoperability, protection of patient privacy, and the need for a clearinghouse of health information must also be addressed.

Transition the health care culture in the United States from an emphasis on individual providers towards team-based practice medical care. Understanding physicians' practice and organization patterns is critical information for policy makers as reform moves forward. Due to their principal role in clinical decision-making, physicians control how up to 90% of every health care dollar is spent in the United States.[62,63] Yet, funds are not always allocated in the most effective manner. For instance, despite the rising incidence of complex chronic diseases, the multiple doctors treating a single patient rarely coordinate treatment and tests, resulting in the unnecessary duplication of services at the cost of $25-50 billion a year.[64] Patients in communities across our country should have a primary physician who coordinates their care and communication with all other providers. The *Patient Protection and Affordable Care Act* provides grants to support community-based collaborative care networks to encourage health care providers to coordinate and integrate health care services for members of low-income, underinsured, and uninsured populations.[65] The

lessons learned from these model programs for care integration, if proven effective, should be widely adopted across America.

With 47% of physicians currently practicing individually or in groups smaller than five,[66] the professional culture of medicine must be realigned from a system that incentivizes individual practice to foster a more team-based approach. One strategy to achieve this transition emphasizes team-based budgeting of health care with sharing of savings to incentivize providers to practice quality, cost-effective patient care. Only 9.2% of doctors today report that the results of "practice profiling," defined as comparing their use of medical resources with that of other providers, are significant in determining their compensation.[67] This number should be increased in order to reduce cost outliers and ensure higher quality patient care. Team-based budgeting and bundled payments would likely accelerate the adoption of this practice.

Another proposal to improve quality and patient satisfaction calls for incorporating health outcome results into team- or organization-focused reimbursement arrangements. Currently, only 14.6% of physicians report that their compensation is affected by patient satisfaction surveys, and only 12.6% report that quality of care measures guide reimbursement practices.[68] New payment methods for physician groups, such as including bonuses for pay-for-performance on top of standard fee for service compensation (quality improvement data, patient outcomes, patient satisfaction, working in medically underserved areas) should be considered to incentivize the inclusion of such value based measures.

Team-based medicine and the utilization of HIT should be viewed as mutually reinforcing. HIT allows for the creation of "virtual" doctor groups, which could each establish a budget based on costs for a group of physicians. Any savings from coordination would subsequently be shared among the doctors in such a group. HIT can also facilitate the coordinating efforts of the primary physician (PCP), nursing professionals, and combine with the concept of a patient-centered medical home (PCMH) to facilitate productive partnerships between individual patients and their health care providers.

Eliminate the anti-trust exemption for health insurance companies to foster competition, transparency, and consumer choices. The Anti-Trust exemption was passed by the U.S. House of Representatives on February 24, 2010 but has not yet been enacted by the Senate. Mechanisms are needed to permit providers to develop strategies to self-organize and foster collaborations between government, insurance organizations, pharmaceutical companies, hospitals, employers, and community groups that have a major stake in improving health. Areas to be addressed include the liability, financial risk, and legal concerns of holding doctors collectively responsible and reimbursing them in a group, as compared to the current method of care by individual providers.

Develop and implement strategies to eliminate health disparities. Significant health disparities exist for racial/ethnic groups and for women in the health care delivery system. Certain racial and ethnic minority groups have higher death rates from illnesses including heart disease, stroke, diabetes, and AIDS and often receive lower quality health care than do non-minorities, even when factors such as insurance status are controlled for. Additionally, women receive less aggressive diagnostic and treatment interventions for some diseases than do men and have not been the focus of research and preventive interventions in the past.[69] The complex sources of these disparities involve factors on multiple levels, including how research was conducted, the health system, delivery processes, healthcare professionals, and patient related issues. A comprehensive multi-sectoral

strategy is needed to eliminate these disparities, involving healthcare providers, their patients, scientists, health insurance plan purchasers, communities and society.[70] Additionally, public health and medical interventions must be targeted to the needs of diverse population groups, and health care professional training and public education must include a focus on these important issues.

Establish a health care delivery systems training curriculum, academic discipline, and promotion track. Despite the enormous need for improvement in the U.S. health care delivery system, there is no established means of educating health care professionals wishing to re-engineer the health system towards value. Similarly, there is a dearth of academic and other institutional research on health care operations and few professorships in the science of health care delivery. To address these concerns, a training curriculum that focuses on the interdisciplinary science of health care operations and management must be developed. Consequently, a public or private entity (perhaps building on the mission of the non-profit Patient-Centered Outcomes Research Institute established by the *Patient Protection and Affordable Care Act)* should be charged with compiling examples, systematizing lessons learned in the real-world, and creating a training program for health care managers. Establishing both academic and private sector promotional tracks is critical to recruiting, retaining, incentivizing, and advancing qualified health professionals who can contribute significantly to system improvements. The federal government, medical institutions, and insurers (all potential beneficiaries of such an initiative) should investigate methods to recruit and maintain human capital in this field, as well as fund research and provide other resources for strengthening this discipline.

Foster medical school education reform measures to address primary care physician shortages, teach team-based medicine, and emphasize the importance of prevention. It is a widely held assumption that if students receive a new model of training in medical school and other graduate health education programs, the system will automatically transform as these new physicians and health care providers join the workforce. Because this is not always the case, health care system incentives need to be realigned to support changes to provider practice patterns. Specifically, greater coordination among health care professional licensing bodies is needed to achieve competency-based assessment, to design inter-professional care models, and to develop core competencies. Interdisciplinary team-based learning models, such as those proposed and allotted funding in the recently approved health care reform legislation package (demonstration models for medical homes, team-based approaches to chronic disease management in primary care, and training programs integrating physical and mental health)[71] should be introduced early in education and training of health professionals[72] and included in their performance evaluations. The importance of prevention must truly be emphasized in the medical and nursing curriculum, as doctors and nurses are key to educating patients about healthy behaviors.[73] The extension of this practice outside of academic training will be encouraged by the Primary Care Extension Program, to be established by AHRQ (as stipulated in the *Patient Protection and Affordable Care Act).* This initiative will provide education to primary care providers about preventive medicine, chronic disease management, and mental and behavioral health services.[74]

Furthermore, Medicare's significant financial support of residency programs through direct and indirect graduate medical education (GME) subsidies could spur new models and practices in medical education (such as multidisciplinary teamwork, comprehensive use of health information technology, integrated care delivery, and quality improvement and measurement).[75] The Medicare Payment Advisory Commission (MedPAC) is also set to study the potential impact of linking

medical education subsidies to certain delivery system reform incentives, including an emphasis on primary care.[76]

Building on the physician's role in reform efforts, the successful implementation of coordinated care relies on investment in primary care networks. However, a lack of perceived prestige and inadequate financial incentives currently surround primary care practice, discouraging many students from choosing this specialty. The number of U.S. medical school graduates specializing in family medicine fell by 27% between 2002 and 2007.[77] Given this trend, by 2025, a shortfall of 124,400 primary care doctors is expected.[78] If universal health insurance coverage is enacted, physician demand could increase by 4%, expanding the shortfall by another 31,000 physicians.[79]

Consequently, primary care should be promoted particularly in areas of the country where physician shortages are most critical, by loan-forgiveness programs and other measures. These efforts should build upon provisions in the recently passed health reform legislation that aim to increase the number of graduate medical education training positions in Medicare-qualifying hospitals in health professional shortage regions (prioritizing primary care and general surgery). Such provisions include redistributing currently unused residency slots, as well as providing a 10% bonus payment to primary care physicians and general surgeons seeing Medicare patients in health professional shortage areas (effective 2011-2015).[80] The Administration's FY 2011 budget proposal also includes an important step forward with a $169 million investment in the National Health Service Corps (NHSC) to expand the placement of primary care health professionals including physicians, nurse practitioners, and dentists, in medically underserved areas. This initial pledge will add 400 NHSC clinicians to the over 8,100 who provide primary and preventive health care services across the nation.[81] The health reform laws also include provisions to ensure the presence of residency programs in rural and underserved areas and, as outlined in the Administration's budget request, providers who deliver primary care services in underserved communities could receive partial reimbursement for their student loans.

Additional measures could expand to include further Medicare bonuses for primary care physicians and the establishment of Relative Value Resource Based System (RVRBS) reforms. The aim of these measures is to correct perceived payment imbalances by including addendums to primary care physician reimbursements such as payments for patient telephone and electronic encounters; bonuses to cover the cost of quality improvement, performance measurement and preventive interventions; and consideration of the costs of chronic disease and multiple co-morbidity management and follow-up.[82] Expanding primary care to include incentives for nurse practitioners, physician assistants, and other providers will also be needed to meet the growing demand for care and national health outcomes goals. Additional incentives should be provided to recruit health professionals into specialties outside of primary care that are reporting workforce shortages. However, it should be noted that in the absence of significant delivery system reforms, simply expanding the number of physicians may lead to increased costs of care.[83] What is most urgently needed now is more integrated care, not necessarily just more physicians.

Enhance synergies and innovation among federal health care programs. With one-third of all Americans enrolled in Federal health insurance plans, the government plays a pivotal role in improving the health of Americans.[84] With the goal of enhancing patient care and system efficiency, the Administration should consider establishing an Interagency Council on innovations in health care insurance, potentially expanding upon the new Innovation Center to be established within CMS by the recent health legislation (the *Patient Protection and Affordable Care Act*), that would identify and

develop cross-cutting initiatives and efficiencies, as well as provide leadership in harmonizing aspects of government-run health care plans, including Medicare, Medicaid, the Federal Employee Health Benefits (FEHB), the U.S. Department of Veterans Affairs (VA), as well as the U.S. Department of Defense (DoD) health programs. An example of such a synergy would be permitting the VA to serve as a Medicare primary care manager. In this scenario, if a patient is eligible for both VA and Medicare services, the VA would follow and approve the patient for consultations outside of the VA system. If that outside health provider accepts Medicare, the patient's co-pay could be waived as the two systems automatically coordinate. There is a need to establish and effectively implement more demonstration programs to provide innovation in Medicare as well as foster synergies between federal health care programs.

Bring efficiency and effectiveness to Medicare reform. The Administration and Congress have taken significant steps towards reforming Medicare coverage with the recent health reform legislation, the *Patient Protection and Affordable Care Act* (which, amongst other measures, aims to reduce and eventually close the Medicare Part D "doughnut hole" coverage gap for prescription drug benefits for seniors, as well as cover costs for all approved Medicare preventive services, e.g. colon, prostate, and breast cancer screenings).[85] Additionally, a Presidential Memorandum to reduce Medicare and Medicaid fraud has been issued.[86] The *Patient Protection and Affordable Care Act* will begin the process of linking payment with quality outcomes in Medicare by exploring various value-based purchasing frameworks, notably through establishing a national Medicare pilot program to develop and evaluate potential quality-enhancing and cost-reducing bundled payment arrangements.[87] The Administration's Fiscal Year 2011 budget request also includes provisions to establish Medicare payment-reform demonstration projects;[88] however, the specifics of these demonstration programs have not yet been fully defined. Additionally, an Independent Medicare Advisory Board has been established by the *Patient Protection and Affordable Care Act.*[89]

Another potential strategy to improve the management of Medicare is to commission studies from the Institute of Medicine (IOM) and other institutions to examine potential changes to the overall delivery system structure and Medicare reimbursement procedures. It has been suggested that the nation should move quickly to reallocate resources among health care providers and communities and reward "high-value" health centers by reimbursing hospitals based not on the number of procedures, but on health outcomes achieved.

One way this is addressed in the recent health reform legislation package is to shift some Medicare payments to a "value index" in certain circumstances. With this strategy, cost-efficient hospitals are paid the most, although socioeconomic factors that may contribute to disparities in Medicare spending in various regions of the country would be taken into account when calculating reimbursement rates. Such practices aim to reduce undue variations in Medicare spending. The *Health Care and Education Affordability Reconciliation Act*'s approach regarding this area of Medicare reform includes measures that provide $400 million through FY 2011-2012 to qualifying hospitals in counties with the lowest quartile Medicare spending.[90] The entire legislation package additionally calls for the establishment, in 2012, of a hospital value-based purchasing program in Medicare that pays hospitals based on performance on specific quality measures.[91]

However, proposals to reimburse based on "value" and the "value index," found in the health reform legislation package and advocated for by low spending regions, will require further evaluation. Multiple studies have demonstrated that Medicare spending is poorly correlated with other health spending at the geographic level, and the overall investment in health is often hidden

when examining Medicare spending alone. Health care spending and utilization are two different issues which need to be studied separately. Over-utilization and in some cases under-utilization, in addition to patient needs and preferences, all contribute to regional variations.[92] One strategy for addressing Medicare variation is by working with the Institute of Medicine to expand the knowledge base from which Congress and providers can make better decisions about our nation's investment in health and health care.

Finally, another option for Medicare reform proposes to restructure the way that the top five diseases covered by the plan are reimbursed, including developing specific recommendations for treating and preventing these conditions that would help guide clinical practice.

Connect hospitals and clinics with their communities. The revised IRS 990, Schedule H reporting requirements for nonprofit hospitals and the passage of national health reform present important challenges and opportunities for nonprofit hospitals and the public health community. Regulations that govern how non-profit hospitals may use their IRS-required Community Reinvestment Funds are being revised. In urban settings especially, these funds have been a resource that links hospitals with local leaders to address adverse conditions in under-served communities. Community Reinvestment should remain just that, a resource for community health, not just for advancing the health of hospitals. The Community Building category includes "upstream" population health activities such as youth leadership development, environmental health improvements in the community, and the development of social support systems, among others. Investment in these kinds of activities as part of broader health improvement interventions builds internal population health capacity in nonprofit hospitals and represents an opportunity for collaboration with local public health agencies to advance a shared interest.[93]

Establish a "Federal Aviation Agency"-analogous body as a center in one of the Federal health agencies for reporting and reducing medical errors. Medication errors injure at least 1.5 million people annually in the United States,[94] and medical errors are linked to as many as 98,000 deaths a year.[95,96] Furthermore, patients receive the recommended treatment only 55% of the time, adversely affecting health outcomes.[97] Consequently, a public or private entity should be tasked with systematically collecting knowledge about medical errors— requiring that they be reported (by utilizing HIT and a toll free telephone number) and developing appropriate recommendations to reduce their occurrence. Certain legal protections for providers would be sought in order to encourage wide participation in this program, and state-based regulation of national standards will be key to implementation of such an effort.

Summary:

As Martin Luther King, Jr. declared, "Of all the forms of inequality, injustice in health care is the most shocking and most inhumane."[98] The urgent need for effective implementation of the recent health care legislation to eliminate disparities and promote health equity is clear. For true transformation of the health care delivery system to occur, partnerships are needed between the public and private sectors, working with the American people, to generate the willpower and to take the necessary action to make the United States the healthiest nation in the world.

"Of all the forms of inequality," declared Martin Luther King, Jr., "injustice in health care is the most shocking and most inhumane."

2. ADVANCING PUBLIC HEALTH IN THE UNITED STATES

Introduction

Throughout history, the power of prevention has been understood and promoted. More than 2000 years ago, Hippocrates wrote, "prevention is preferable to cure." In the 18th century, Benjamin Franklin said "an ounce of prevention is worth a pound of cure." In 1979, the Surgeon General's report, *Healthy People*, urged that the nation's health strategy be re-engineered to emphasize the importance of disease prevention and the promotion of good health.[99]

More than 2000 years ago, Hippocrates wrote, "Prevention is preferable to cure." Yet, today only 3-5% of national health expenditures are spent on prevention.

Yet as a country, we have failed to act on this knowledge. While the importance of prevention and the reduction of health damaging behaviors have long been recognized as essential to improving the health of nations, significant investments in prevention have not previously been made in the United States, with only 3-5% of government and private sector health care expenditures spent on prevention and public health.[100,101,102] Even as Americans continue to smoke and become less active, more overweight, and increasingly burdened by chronic disease, disease prevention and health promotion initiatives remain underfunded and underutilized in our towns, cities, and states. Smoking remains the leading preventable cause of mortality (1 in 5 deaths) in the United States, killing 443,000 Americans annually, despite aggressive anti-tobacco efforts since the 1964 publication of the Surgeon General's landmark report, *Smoking and Health*.[103,104] Obesity is another major public health crisis in America: 67% of American adults are overweight and more than one third of adults are obese.[105] In 2006, for the first time in history, there were more obese people than overweight ones in the United States.[106] If this trend continues unchecked, it is predicted that 43% of Americans will be obese by 2018,[107] with 1 in 3 Americans developing diabetes during their lifetimes.[108] If our nation does not reverse this trend, this may be the first generation of American children who are not as healthy as their parents.

Chronic diseases are the primary drivers of health care costs in America and are compromising national health security and the sustainability of the U.S. health care system.[109,110] The United States spends 17.3% of its GDP on health,[111] more than any other industrialized nation, and more than 75% of these costs are linked to chronic disease that can be prevented or delayed.[112] In fact, it is estimated that patients with multiple chronic conditions account for 96% of Medicare expenditures.[113] Chronic diseases, largely linked to preventable behaviors, are also major causes of lost productivity and disability.[114] Rapidly escalating health care costs are already diverting funds from other essential domestic needs in the United States, and this will worsen if current trends are not reversed.

Successful public health interventions target behavioral, socio-cultural and environmental factors to reduce mortality, prevent disease, and promote health. In concert with clinical medicine, which explores the factors that contribute to disease in a single person, a public health approach focuses on identifying, understanding and intervening with populations, developing and implementing

interventions, policies, and regulations on a societal level to advance health.[115] To address the health challenges and opportunities ahead, it is urgent that a major focus on public health and prevention be integrated into the health care system in this country through four key actions:

- ***Instituting health in all policies***: The mobilization and coordination of all agencies of Federal, state and local governments is critical to ensure sound policies in nutrition, physical activity, transportation, agriculture and land use, economic development, education, and marketing, so that all government agencies' actions facilitate healthy lifestyles.

- ***Putting prevention into practice***: An effective health care system must do more than just treat disease and requires the capacity to promote good health across the lifespan. Chronic disease prevention and the promotion of good health must become a priority for individuals, families, health care providers, schools, businesses, foundations, policymakers, and legislators. Successful implementation of public health initiatives requires the support of a politically and structurally re-engineered health care infrastructure that recognizes the social and economic value of prevention.

- ***Launching a national campaign against obesity***: To reverse the growing obesity epidemic and reduce the associated burden of chronic disease, a multi-level, multi-sector national campaign is needed, particularly focusing on children and adolescents. An important step forward includes the First Lady's recent launch of a childhood obesity prevention campaign, *Let's Move!,* and a Presidential Memorandum that calls for optimal coordination among government agencies, in partnership with the private sector, to eliminate childhood obesity within a generation. This initiative includes the identification and implementation of federal policies and programs that increase access to nutritious foods and physical activity and also incentivize healthy eating. It creates a new non-profit organization, Partnership for a Healthier America, to leverage resources and facilitate establishment of programs in the private sector.

- ***Strengthening the public health workforce***: Well-trained public health professionals need to be attracted through loan repayment programs, fellowships, preventive medicine residencies and other health care provider training. The creation of an organized network of practitioners at the national, state, and local levels will help advance the nationwide implementation of best practices in public health through integrated community and population-based efforts that support the work of primary care physicians and other health care professionals. Advancing the mission and strengthening recruitment mechanisms for the Commissioned Corps of the U.S. Public Health Service is another important component of building public health leadership to prevent disease, promote health and effectively respond to public health emergencies.

The Commission is gratified that Federal health reform legislation – the *Patient Protection and Affordable Care Act* passed in March 2010 as well as the "stimulus package," the *American Recovery and Reinvestment Act (ARRA) of 2009* – included many of its recommendations for advancing public health and prevention. These initiatives include establishing and funding a range of public health initiatives, such as the creation of a Prevention and Wellness Fund, a National Prevention, Health Promotion, and Public Health Council, adoption of food labeling for content and calories, health information technology innovations, comparative effectiveness research, expansion of community health centers, and incentives for training more primary care and public health providers, laying the foundation for a paradigm shift from the current emphasis on the treatment of disease to the

promotion of the power of prevention. Sustained federal investments in innovative prevention programs and the promotion of healthy lifestyles are needed to address the chronic disease epidemic, as well as to improve Americans' overall quality of life and health status over the long term.

The current crisis in the nation's health care system, including the impact of the chronic disease epidemic, serves as a critical reminder of the work that must be done to protect the health of the American people. It underscores the urgent need for a 21st century revolution in public health. Success in implementing comprehensive health reform and bringing about this public health transformation will depend strongly on Federal leadership to coordinate a multi-disciplinary, integrative, and innovative approach to health that involves a broad range of stakeholders from the public and private sectors. Ultimately, the promotion of public health must once again emerge as a priority for the nation as it was at the beginning of the 20th century.

Establish *Health in All Federal Policies* and strengthen coordination of health activities across federal agencies. Improving health in America is not merely the province of the health sector. There are over 40 federal agencies whose policies affect health, including the U.S. Departments of Health and Human Services (HHS), Agriculture (USDA), Transportation (DOT), Housing and Urban Development (HUD), Homeland Security, Education, Interior, State, and Defense, as well as the Environmental Protection Agency**.** A broad range of federal policy changes, such as regulating tobacco products, implementing healthier school meals, encouraging fruit and vegetable consumption, incentivizing an agricultural system that enables Americans to have a healthier diet, ending hunger and food insecurity, requiring nutrition labeling on restaurant menus and other out-of-home locations, funding the construction of bicycle paths and sidewalks, expanding parkland development, and improving air and water quality—when taken together—can dramatically improve the health of Americans and reduce costs as well.

A reorganized Federal architecture is needed to implement *Health in All Policies* and synergize the work of different federal agencies. The National Prevention, Health Promotion, and Public Health Council as described in the *Patient Protection and Affordable Care Act* and proposed by this Commission in its first report *New Horizons for a Healthy America*, when established, will coordinate federal prevention, wellness, and health promotion activities as well as develop and implement a national strategy to advance public health, under the guidance of the Surgeon General.[116] Inter-agency opportunities should be identified for collaborative programs to promote a cultural shift toward health promotion and disease prevention that can play out successfully in states and localities throughout America.

Issue a Presidential Call to Action for a Healthy United States and mobilize all agencies of government, all sectors of society, and all Americans to move towards a healthier future. The Administration should consider convening a White House Health Summit to bring attention to the state of the country's health, culminating in a *Presidential Call to Action for a Healthy United States*. This initiative would build on and communicate information from the *Healthy People 2010 and 2020* programs administered by the U.S. Department of Health and Human Services that set and evaluate national targets for health improvement. The President should issue an annual "State of America's Health" document at the time of the State of the Union to report to the American people on the progress that has been made in achieving a healthier United States. Importantly, this report will serve as a health barometer for the nation, monitoring progress on health insurance reform efforts, as well as movement towards a systematic approach to improving health that involves agricultural,

transportation, and environmental policies, among others, to foster healthier American lifestyles and a culture of prevention. The national public-private outreach and science education media campaign on health promotion and disease prevention (proposed in the Commission in its first report), to be planned and implemented by the HHS Secretary with the Director of the CDC (as specified in the *Patient Protection and Affordable Care Act),* should be implemented. This campaign would disseminate messages that empower Americans to adopt healthy behaviors, focus on tobacco and obesity prevention, and make efforts to increase health literacy nationwide. The creation of an engaging, interactive website is essential as a go-to resource for health information for the public, providers, schools, businesses and communities. Cutting edge social media should be utilized and integrated with the online personalized prevention tool to be developed by the CDC.[117]

Emphasize public health and prevention in the implementation of health care reform efforts. The health care reform debate has largely focused on developing strategies for Americans to acquire health insurance and access medical services, as well as to prohibit discriminatory practices by insurance companies and decrease costs. However, a fundamental component of ongoing health care reform efforts must center on creating a system that improves health and promotes healthy behaviors, beyond just diagnosing and treating disease. A transformative component of the new health care legislation is the law's requirement that insurers must offer preventive services, including immunizations and wellness checkups by private insurers, and additional screenings under Medicare, at no additional out of pocket costs for patients. This makes sense because much of the risk for chronic diseases in the United States is linked to preventable factors, including health damaging lifestyle choices.[118] In particular, four modifiable behaviors—tobacco use, inactivity, poor diet, and alcohol abuse—are responsible for 38% of deaths in the United States every year.[119] In recognition of the urgent need to prevent disease, decrease health costs, and improve health outcomes in America, groups including the U.S. Preventive Services Task Force[120] and the National Commission on Prevention Priorities (NCPP) have reviewed the clinical effectiveness of prevention measures and proposed a core set of services, including screenings, immunizations, and clinician counseling.[121] According to the NCPP, 100,000 lives could be saved annually by increasing the use of five high-value preventive services, including recommending low-dose daily aspirin to prevent heart disease, providing preventive services and cessation medications for smokers, influenza vaccinations, and screening for colorectal and breast cancer.[122]

Despite the availability of clinically effective tools to prevent disease, more than 75% of health-care spending in America is linked to the management of largely preventable chronic conditions, including cardiovascular disease, cancer, Type 2 diabetes, and obesity.[123] It is critical that the U.S. health care system adopt a more prevention-based approach to health care in order to reduce the social determinants that drive the leading causes of morbidity and mortality, as well as to control health care costs. Furthermore, addressing these broader determinants of health at the community level is critical to providing people with healthy choices.

- ***Make chronic disease prevention a priority.*** Patients, health care providers, and policymakers need to establish a better balance of primary (health promotion and protection), secondary (screening/early detection), and tertiary (chronic disease management) prevention services. In particular, the public, employers and policymakers must increase their understanding of how health damaging behaviors related to tobacco use, diet, and physical activity affect personal, workforce, and public health. In addition to more comprehensive social marketing efforts to promote a culture of wellness, economic

incentives (e.g. insurance premium deductions and tax breaks) are needed to encourage individuals, businesses, and government to foster healthier behaviors in America.

Investing in prevention makes economic sense as well.

Investing in prevention makes economic sense as well. A review of worksite health promotion and disease prevention programs found a significant return on investment of $1.49 to $4.91 (median $3.14) per dollar spent on disease prevention programs.[124] Business leaders estimate that if employer health promotion and wellness incentives are offered nationally, America's health care bill could be as much as $550 billion less than it is today.[125] Many employers have already recognized the economic value of offering health promotion and wellness incentives in the workplace and report improvements in employee health and productivity, as well as reductions in business expenditures on health.[126,127,128,129,130] In fact, three out of four large companies now offer free preventive screenings to their workers. However, small employers, low-wage businesses, and individual health plans have been less likely to offer free care of any type. While the new health legislation aims to make more generous wellness benefits available to everyone, national and state leadership is needed to accelerate that process.

The Administration plans to enhance the Federal employee workplace wellness initiative (with a $10 million investment through 2011, to implement and evaluate prototype programs).[131] Measures to foster health promotion in workplaces in the recent health reform legislation include: (1) providing grants to small businesses to establish wellness programs; (2) conducting a national worksite health policies survey (by the CDC) to evaluate employer-based health policies and programs; (3) establishing several state-level pilot workplace wellness programs; (4) providing technical assistance in evaluating such programs; and (5) allowing employers to offer their workers incentives (as premium discounts, waivers of cost-sharing requirements, or other benefits) of up to 30% the cost of coverage, for participating in a workplace wellness program and meeting certain health standards (starting in 2014).[132] These strategies should be introduced quickly, tracked, and expanded upon once their success and effectiveness are demonstrated.

Prevention must also be supported and incentivized within the medical treatment model. New infrastructure, including both innovative technology and overall structural change, is needed to enable physicians and other health care providers to adequately provide preventive care and chronic disease management to their patients. The expansion of health information technology and the use of other tools and referral relationships, including collaborations with public health and community organizations, are required to make it easy and fast for busy primary care physicians and other practitioners to offer advice and rapidly connect patients to the information and the assistance they need. Moreover, at the health systems level, it is critical that physicians and other health providers be adequately reimbursed for day-to-day guidance of their patients on nutrition, physical activity, smoking prevention and cessation, and other health education services.

- ***Provide sustained funding for public health and community-based prevention initiatives.*** Our health care system has become a "sick-care" system that operates on a disease treatment model. The overwhelming majority of every health dollar goes towards treating illness, leaving very little in the way of resources to prevent those illnesses from

occurring in the first place.[133] Nutrition, obesity, alcohol, and tobacco use have been identified by the World Health Organization as four major risk factors for disease in both developing and developed countries[134,135] and are largely influenced by characteristics of the local environment[136]—the availability of healthy and affordable food, opportunities and safe spaces to exercise, and the density of tobacco vendors and places to smoke. Infrastructural change is needed at the community level to make healthier choices the easiest choices, regardless of people's socio-economic status.

The $1 billion Prevention and Wellness Fund established by the ARRA in HHS[137] has begun to support the implementation of evidence-based clinical and community-based prevention and wellness strategies to prevent chronic diseases.[138] Of this $1 billion, $650 million funds the HHS initiative, *Communities Putting Prevention to Work*, which mobilizes community resources to strengthen the capacity of states to expand the use of evidence-based strategies, change local environments, and implement policies to improve nutrition, increase physical activity, and decrease obesity rates.[139] Over $119 million of the funding for the community prevention and wellness initiative is awarded to states and U.S. territories to support community and school-based public health efforts to increase access to healthy choices and safe places to be active.[140] Such investments, combined with the enhanced focus on funding and grant programs for community-level prevention initiatives and services in both the Administration's FY 2011 budget proposal and in the *Patient Protection and Affordable Care Act* (which include increased funding for preventive screenings, immunizations, and community health centers), represent important steps in the right direction. However, these short-term funding commitments should be viewed as the start of a longer-term, well financed national investment in prevention, the latter of which will be fueled by the Prevention and Public Health Fund to be established in FY 2010, as stipulated in the health reform legislation[141] and proposed in the Commission's first report, *New Horizons for a Healthy America*. This initial support, and all future investments coordinated through the Fund and other entities, should be tied to a very clearly defined national strategy for supporting multi-level, integrated, public/private community and population-based efforts that advance prevention and public health preparedness for natural disasters and pandemics, eliminate health disparities, and address the social determinants of health.

Increase policymaker support for prevention by making an economic case for its cost-effectiveness and social value. Prevention, irrespective of cost-savings, is a critical component of making America a healthier nation. Numerous studies demonstrate the effectiveness, the economic value, and the cost-saving potential of various prevention programs, in addition to the personal and social benefits of avoided illness.[142,143,144,145] However, despite demonstrated clinical effectiveness, the limited scoring framework used by the Congressional Budget Office (CBO) has historically undervalued prevention programs at the legislative level. Such scoring has led to some skepticism about the economic value of prevention[146] and has made it difficult to obtain the political support and momentum needed to integrate prevention into the standard of health care. To advance the argument for achieving cost-effective spending for health, it is necessary to clarify the concept of value and to revise the outdated CBO scoring metrics currently used to evaluate prevention programs.

- ***Reframe the current economic argument to focus on the value of prevention, rather than simply focusing on its costs.*** The United States must emphasize optimizing economic value—getting more benefit per dollar spent—for all health services. It is critical

to shift investment from expensive, low-value medical services to more cost-effective interventions, for both prevention and treatment.[147] Many evidence-based preventive services offer good economic value (e.g., <$50,000 per quality-adjusted life year), yet are poorly utilized in the health system.[148] Of the 25 interventions recommended by the U.S. Preventive Services Task Force, 15 cost less than $35,000 per quality-adjusted life year (QALY) and 10 of these cost less than $14,000 per QALY.[149,150] Such prevention strategies (e.g. hypertension screening) offer better value compared to many commonly prescribed disease treatments (e.g. angioplasty) that can cost payers $100,000 or more per QALY.[151,152] In terms of premature death and illness avoided per dollar spent on health care, expanding the delivery of value-based services—whether for prevention or treatment—will lead to a more cost-effective use of the nation's resources. By placing prevention at the center of urban governance and planning, through the expansion of public transportation systems that promote physical activity and the creation of sustainable, regional food systems that enable the purchase of healthy, locally-grown foods, Americans can live longer and healthier lives with a reduction in preventable chronic diseases.[153] It is time for the United States to move away from an inefficient "sick-care" system to one that promotes value and wellness for the sake of our nation's health and economy.[154]

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Additionally, a subset of preventive services, including the childhood vaccination series[155] and smoking cessation services,[156] yield net savings and can serve as fundamental tools to improve health, help maintain a healthy workforce, and reduce costs for both public and private payers. Emerging analysis suggests that if correctly utilized, an investment of $10 per person in such disease prevention and health programs can lead to $16 billion in annual savings within five years. Out of this $16 billion, private payers have the potential to save more than $9 billion, Medicare more than $5 billion and Medicaid more than $1.9 billion.[157]

- ***Develop consistent methodologies to evaluate the cost-effectiveness of treatment and prevention services***. Disease treatments and preventive services often face different levels of scrutiny when evaluating their cost-effectiveness. Prevention programs are frequently subjected to rigorous cost-effectiveness analyses before qualifying for federal funding or being considered for reimbursement by insurers. By contrast, many disease treatments are only required to demonstrate a health benefit, irrespective of cost.[158] Consistent guidelines need to be applied in evaluating the economic value of disease treatments and preventive services in order to eliminate this double standard.[159]

- ***Extend the current 10-year Congressional Budget Office (CBO) scoring timeframe to 20 years to evaluate the cost effectiveness of preventive services.*** Even where peer-reviewed data on prevention programs do exist, scoring mechanisms unnecessarily discount and undervalue the future financial benefits of these interventions. The CBO currently uses a limited 10-year timeframe to score the benefits and cost savings of prevention, thereby penalizing prevention programs for up-front costs while failing to take into account their long-term savings. For example, the current CBO scoring framework would attribute only

cost and little savings to smoking prevention programs targeted at children and adolescents, given that many of the adverse health effects of tobacco use occur later in life,[160] outside of the 10-year CBO scoring window. There is proposed legislation (U.S. House of Representatives bill H.R. 3148) to modify the way the CBO scores prevention by amending the Congressional Budget Act of 1974 to extend the CBO scoring timeframe to two consecutive 10-year periods for certain circumstances.[161] It is imperative to adjust the CBO scoring framework for all three levels of prevention (primary, secondary, and tertiary) in order to provide Congress and the public with a more accurate scoring and forecast of both the long-term costs and benefits of prevention programs.

- ***Broaden CBO economic analysis beyond the federal health care sector to provide a more accurate projection of the economic value of prevention programs.*** While CBO cost estimates are primarily used to provide Congress with analysis of how proposed legislation would impact the federal budget,[162] savings from prevention programs are often generated outside of the public health sector. For example, in addition to having higher medical costs,[163,164,165] smokers are absent more often from work and spend work time on smoking breaks.[166] Reducing smoking rates among employees can generate savings within the government in terms of lower healthcare costs, higher productivity, and avoided workplace hazards. Additionally, nutritious food programs and physical activity[167] can improve student academic performance in public schools.[168,169] Reducing obesity and increasing physical activity has been similarly shown to improve workforce productivity.[170,171] Multiple factors beyond immediate health care costs need to be considered in estimating the value and savings from prevention measures like smoking cessation, nutrition, and physical activity and wellness initiatives.

  Furthermore, the economic benefits from a cultural shift toward prevention may be even greater than the sum of scored savings from individual preventive interventions. A comprehensive shift toward prevention may accrue savings that cannot be captured by economic models that score single interventions, as suggested by the dramatic decline in smoking rates in the United States over the past several decades. Even though the most effective smoking interventions targeted to individuals (commonly nicotine replacement therapy) tend to have a relatively modest impact on behavior change, resulting in an absolute effect that can constitute anywhere from a 2-3% to 8% decline in tobacco use,[172] smoking rates among American adults have dropped dramatically in the past 40 years (from 42.4% in 1965 to 19.8% in 2007).[173] It has been a population-based prevention effort—establishing smoke-free policies, education campaigns on the health damaging effects of tobacco, marketing regulations, and higher taxes for tobacco products— that has shown that synergy among elements can significantly reduce tobacco use and shift cultural and social norms away from this highly addictive habit.[174] Significant economic benefits have been reported at the state level; California's portfolio of a range of tobacco control measures was estimated over 20 years to yield a 50-fold return on investment in terms of reduced health care costs.[175]

  This kind of comprehensive, social, and ecological approach must be sustained and is needed to address other public health problems such as obesity. Providing the Administration and Congress with a broader economic analysis of prevention services will help policymakers make more informed decisions regarding health policy.

Launch a national campaign to fight obesity. Obesity is a public health crisis and epidemic in the United States. Adult obesity rates in America doubled between 1980 and 2004.[176] 67% of Americans are now overweight or obese.[177] The negative health effects of obesity—e.g. cardiovascular disease, diabetes, stroke, joint problems—threaten to outweigh the positive effects gained from the past 40 years of declining smoking rates.[178] The cost of treating the health effects of obesity in 2008 was estimated to be as high as $147 billion—9% of all medical spending for that year.[179] If left unchecked, it is predicted that 43 percent of Americans will become obese in the next decade and health care spending on obesity will increase to $344 billion, accounting for more than 21% of the nation's direct health care spending in 2018.[180]

Given the link between rising rates of obesity and increased medical expenditures, urgent efforts are needed to address the obesity epidemic in the United States through the promotion of healthy eating and physical activity. In its first report, *New Horizons for a Healthy America*, the CSPC Commission called for several key actions, including Federal leadership, a national campaign on childhood obesity prevention, and increased research on this public health problem. Since the publication of these Commission recommendations in April 2009, the Surgeon General has issued a report on a *Vision for a Fit and Healthy Nation-2010* that describes several key priorities for promoting healthy eating and physical activity to reduce the incidence of obesity nationwide, focusing on the importance of individual and community-wide efforts to create healthier environments (work sites, child-care sites, schools, and other settings.)[181] Many organizations including the Institute of Medicine have issued recommendations as well calling for a comprehensive approach to obesity prevention involving all sectors of society, with an emphasis on governmental leadership as well as corporate and community responsibility.[182,183,184,185]

A well funded national education campaign is needed that promotes the benefits of physical activity and healthy eating, supporting initiatives to encourage these behaviors within various communities and sectors of society. This campaign should feature a range of Americans from diverse populations, who can testify to the benefits of healthy lifestyles, in order to encourage other Americans to take steps towards a healthier future. To increase public awareness at the national level, the President and the First Lady should continue their leadership in this effort, serving as champions for a healthier nation.

While several federal initiatives to combat obesity and its associated chronic conditions are already in place, such as the CDC's Common Community Measures for Obesity Prevention Project and LeanWorks! workplace obesity prevention program, the NIH's Obesity Research Task Force, the National Heart, Lung, and Blood Institute's Obesity Education Initiative, the USDA's Team Nutrition program, WIC, Supplemental Nutrition Assistance Program-Education and community food security programs, and several initiatives at the FDA, such activities should be better coordinated amongst federal agencies and departments. A government-wide task force has been established on childhood obesity. Its mission should be expanded to identify how each federal department can contribute to the battle against obesity in adults as well.

Expand support for initiatives focused on preventing childhood obesity and integrate efforts at the local, state, and federal levels. Today's generation of children in the United States could become the first in modern history whose lifespan will not exceed that of their parents. Over the past 25 years, rates of severe childhood obesity have tripled in America, putting many children at risk for cardiovascular disease, high blood pressure, high cholesterol, and Type 2 diabetes.[186] 17% of children and adolescents are now overweight[187] and therefore are more likely to become obese as

If we don't act now, today's generation of children could become the first in modern history whose lifespan will not exceed that of their parents.

adults.[188] Currently, nearly $1.6 billion is spent annually in industry food and drink marketing targeted to children and adolescents, with advertising concentrated on soda, fast food and cereal products.[189] Comprehensive obesity programs at the local, state, and federal level that educate, empower, then create and maintain environments that promote healthy food choices, active lifestyles, and health literacy throughout life, especially for children and youth, are needed to help reverse this growing trend.

In its first report, *New Horizons for a Healthy America*, the CSPC Commission recommended the establishment of a childhood obesity prevention campaign. The Administration's *Let's Move!* campaign, launched by the First Lady, aims to eliminate childhood obesity within a generation and will serve as an important catalyst for multi-level, multi-sectoral efforts among federal, state, and local governments and organizations. The campaign is employing a comprehensive approach that mobilizes the public and private sectors to provide families, schools, and communities with the tools they need to help children improve their health through physical activity and healthy eating. The website for this initiative, *LetsMove.gov*, provides parents and children with information and steps on how to prevent and combat childhood obesity. The media campaign planned for *Let's Move!,* in which HHS will partner with the Ad Council, film studios, and children's media to run PSAs that will encourage healthy eating and physical activity habits, could coalesce state and community programs and could serve as a model for involving athletes, celebrities, and other high profile figures such as health and business community leaders.[190] Lessons should be learned from the VERB campaign launched several years ago.

The President has also issued a Memorandum establishing a Federal Task Force on Childhood Obesity with membership of the Department Secretaries of the Interior, Agriculture, Health and Human Services, and Education, as well as senior representatives of other executive agencies, departments, and offices. This Task Force is conducting a review of all programs and policies relating to children's nutrition and physical activity in the Federal government and developing a national action plan for progress by May 2010.[191] The nation's leading health foundations have collaborated to establish a new organization, The Partnership for a Healthier America, to foster private sector initiatives in this area.[192] Additionally, the *Patient Protection and Affordable Care Act* includes provisions for funding childhood obesity prevention demonstration projects.[193]

The Administration has taken important action in its FY 2011 budget proposal by allocating $10 billion to be used over 10 years to improve the quality of the National School Lunch and Breakfast Programs (in which over 42 million children currently participate) with the goal of providing more fruits, vegetables, whole grains and low-fat dairy products in school cafeterias.[194,195] The National Collaborative on Childhood Obesity Research (NCCOR), formed by the CDC, NIH, and Robert Wood Johnson Foundation, also serves as a model for establishing collaborative initiatives and partnerships between Federal and private sector organizations.

On a statewide level, CDC's Division of Nutrition, Physical Activity, and Obesity (NPAO), established in 1999, currently funds 25 states to conduct obesity prevention activities through statewide programs coordinated with multiple partners.[196] Such efforts should be increased significantly to ensure that every state has a comprehensive obesity prevention initiative in place,

along with the funds necessary to implement those programs, given that obesity has significantly increased in all states since 1990.[197] CDC funding and technical assistance should be directed to help support state obesity prevention programs in Alabama, Oklahoma, Mississippi, Kentucky, Ohio, South Dakota, and Missouri, seven of the nine states that have had the greatest increase in obesity rates since 1990 but do not currently receive CDC Division of Nutrition, Physical Activity, and Obesity funding.[198] CDC should establish population-based funding allocations for nutrition and physical activity, peer-to-peer learning communities among the states, and technical assistance that helps states and localities develop sources of support for their obesity prevention initiatives.

Implement nutrition-specific policies at the federal level. Agricultural and food policies play a significant role in determining the types and quality of food produced and consumed in the United States.[199] This was underscored in the CSPC Commission's first report, *New Horizons for a Healthy America*. Several programs that address food policies are specified in the recent health reform legislation. This year, the FDA will begin working with food retailers and manufacturers to adopt new consumer-friendly front-of-package labeling for food content and calories, while the American Beverage Association has pledged to implement these labeling practices for all of their products within two years.[200] The health reform law signed by the President requires vending machines and restaurant chains with 20 or more outlets to display calorie counts, in addition to the suggested daily caloric intake, once regulations are promulgated.[201] The USDA is working to upgrade the food served in all of its child nutrition programs and is designing the next generation food pyramid, in order to communicate more clearly what foods are best for a balanced diet.[202]

Some other key actions that can be taken at the federal level to decrease overweight and obesity, through evidence based nutrition policies, include:

- A comprehensive re-evaluation of U.S. agricultural subsidy programs, with special attention to increasing marketing supports for fruits and vegetables.
- Building on regulations contained in the *Patient Protection and Affordable Care Act,* additional initiatives to strengthen food labeling policies, including nutrition labeling on institutional-size food packages and other out-of-home venues, are needed.
- Pricing strategies that increase the availability of healthy foods and reduce meal and drink portion sizes sold at restaurants, convenience stores, and in all government and federally funded food services and sales sites.
- Taxes or remediation fees on sugar-sweetened beverages with revenue used to fund state and local public health prevention initiatives.
- A plan for reduction of salt in the American diet, including decreasing the amount of sodium in processed foods and in restaurants. A recent Institute of Medicine report found that Americans are consuming unhealthy amounts of salt, underscoring why the FDA should address this issue. It is estimated that such action could avert as many as 100,000 deaths annually in the United States.[203]
- The exclusion of soda and other foods of minimal nutritional value from the Supplemental Nutrition Assistance Program (SNAP) and other Federal programs, together with measures that incentivize the purchase of fruits, vegetables, and low-fat milk products.
- More direct marketing outlets for local farmers, such as farmers' markets, community-supported agriculture and farm-to-fork networks for schools, restaurants, small stores, and other institutions.

Increase access to healthy food and opportunities for physical activity, especially in low-income communities. Lack of access to nutritious, affordable food and active living are risk factors for obesity, heart disease, and diabetes, particularly among low-income groups. For example, studies conducted in New York City have found that a lack of produce, supermarkets, and other healthy food stores has been associated with higher rates of obesity and diet-related diseases.[204] One study found that children living in metropolitan areas with highly priced fruits and vegetables had significantly higher gains in body mass indices (BMI) than children living in communities where fruits and vegetables were cheaper.[205] Studies also show that those most at risk to be overweight have the least access to sidewalks, parks, bike trails, and public pools.[206] In California, the percentage of children walking or biking to school has dropped from 66% in 1974 to 13% in 2000 due to distance from school, crime, traffic danger, and unsafe streets.[207] Increased access to supermarkets and safe places for physical activity is needed in order to enable individuals to make healthier choices. The Administration's FY 2011 budget request takes an important step in this direction by establishing a new collaborative "Healthy Food Financing Initiative" between the U.S. Departments of Agriculture, Treasury and Health and Human Services that will invest $400 million a year to bring grocery stores and healthy food retailers to underserved rural communities. The goal of this program is to eliminate "food deserts" within seven years.[208,209]

However, additional action is needed by the Federal government to address barriers to healthy eating and physical activity, with special attention to reversing the rising rates of food insecurity and hunger by strengthening nutrition safety net programs.[210,211] Current USDA rules for behaviorally focused, science-based nutrition education interventions through the Supplemental Nutrition Assistance Program (formerly Food Stamps) *do not* provide support for the following: (1) activities that increase access to healthy foods like fruits and vegetables in low-income communities; (2) the development of policies that support healthy eating and physical activity; (3) comprehensive marketing campaigns to improve food choices and physical activity; and (4) marketing efforts to increase participation in under-enrolled nutrition programs like SNAP, school breakfast, and summer meals.[212] Furthermore, most nutrition education intervention activities are focused primarily in census tracts where more than 50% of the population have household incomes below 185% of the federal poverty line,[213] a policy that has the inadvertent effect of excluding the majority of income-eligible persons.[214,215] The Administration must broaden the applicability of such programs to facilitate healthy eating behaviors for a greater proportion of the low-income population, harmonize requirements and delivery among categorical programs at the federal, state, and local levels, streamline and simplify administration to drive results, and incentivize change through Federal Financial Participation (FFP) programs.

Federal policies should require that projects supported by the U.S. Department of Transportation (DOT) be designed to promote physical activity and enhance health, including the construction of pedestrian and bike paths and streetscapes, as well as the expansion of the public transportation system. Since 1991, the Transportation Enhancements Initiative in the DOT has made funding available to states through the Surface Transportation Program to "help expand transportation choices and enhance the transportation experience."[216] However, pedestrian and bicycling infrastructure expansions are only two of twelve possible enhancements for which states may allocate funds. Special efforts are needed to increase state funding for the construction of basketball and tennis courts, pools, skateboard parks, community gardens, farmers markets, and other facilities that promote physical activity and healthy eating.

Strengthen and expand the public health workforce. A strategic framework is needed to implement the expansion of the public health workforce at the federal, state and community levels. This coordinating framework could accompany and expand upon the projected efforts of the National Center for Health Care Workforce Analysis and the National Health Care Workforce Commission, slated to be established by the *Patient Protection and Affordable Care Act* in late 2010.[217] Strengthening the public health workforce requires attracting professionals from diverse backgrounds who are well-trained in multi-disciplinary public health sciences, possibly by financing the public health education of students who commit to practice for a certain period of time in high-need areas. To best equip public health providers in the 21st century, public health education should be tied closely to practice, providing training that better reflects the necessary career skill set to effectively address the public health challenges and opportunities ahead. Additionally, mid-career positions for public health professionals should be expanded to strengthen the workforce, including providing scholarships for mid-career professionals in the public health and allied health workforce as was included in the *Patient Protection and Affordable Care Act.* [218]

The Commissioned Corps of the U.S. Public Health Service provides a model for a service that strengthens the public health workforce to protect and promote the health of the American people. An important element of the health reform legislation includes provisions to strengthen the recruitment mechanisms and mission of Commissioned Corps to more effectively address public health priorities and emergency preparedness. The USPHS Commissioned Corps is one of seven uniformed services in America whose specific mission is to protect and promote the health of the American people, to advance public health science, and to respond to medical emergencies.[219] With the Corps increasingly called upon to address health diplomacy missions and to be involved in disaster response, there has been an urgent need to eliminate the cap on the size of the regular corps, to create a ready reserve for surge capacity for public health crises, and to enhance recruitment into this service. The *Patient Protection and Affordable Care Act* includes measures to achieve all of these objectives as well as establishes a Public Health Sciences Track authorizing the U.S. Department of Health and Services to grant advanced health professional degrees that emphasize team-based service, public health, epidemiology and emergency preparedness and response. The Track is authorized to annually graduate 850 health professional students who will receive scholarships funded by the Office of the Surgeon General and would serve two years for each year of school supported by this program. These actions should help strengthen America's public health workforce and ability to respond to the health challenges of our time.

Additional noteworthy strategies to strengthen the public health workforce that will be enacted through the *Patient Protection and Affordable Care Act* (several of which were recommended in the CSPC Health Commission's first report *New Horizons for a Healthy America)* include: (1) a healthcare workforce development grant program, in addition to a revised public health workforce loan repayment program and increased funding for the National Health Service Corps; (2) increased funding for community health centers; (3) enhanced primary care and cultural competence training in public health to address workforce shortages in state and local health departments; (4) bonus payment incentives awarded to primary care physicians and general surgeons who practice in health professional shortage areas; (5) support for preventive medicine residencies and advanced nursing programs to train future leaders in public health; and (6) the establishment of modern interdisciplinary professional training programs through the nation's schools of public health.[220]

Advance the nationwide implementation of best practices in public health through integrated community and population-based efforts. Integrated community and population-based efforts are needed to advance prevention and increase access to primary care at the local level.

As the *2009 America's Health Rankings* suggest (prepared by the United Health Foundation, American Public Health Association, and the Partnership for Prevention), states and communities differ in terms of leading health concerns, as well as the available infrastructure to address them, and therefore require customized services to meet public health needs.[221] However, clinicians at the local level can have only a limited impact without broader public health support at the state and federal levels. For example, a doctor's advice to exercise only goes so far without the environmental changes in the community to promote physical activity. To promote health beyond the clinical exam room, linkages between primary care, public health, and community programs are needed to leverage the influence of doctors and to set the stage for coordinated efforts across community sectors—schools, workplaces, and common-use settings like parks, transportation, and retail venues. The new Task Forces on Community Preventive Services (to be established by the recent health reform legislation under the direction of the CDC) will help coordinate activities and develop and disseminate evidence-based recommendations on the use, benefits, and cost-effectiveness of clinical and community prevention services.[222] Well integrated efforts provide the public with unified support to foster healthy behavioral changes.

The Agricultural Extension Model—an early 20th century partnership between the USDA, state and county governments, agricultural universities, and farmers that transformed agricultural practices by supporting innovation—provides a model for an organizational framework to help clinicians link with local partners and resources to build primary care services and promote health. In a Primary Care Cooperative Extension Service, local change agents can work collaboratively with primary care clinics and private practitioners to solve public health problems. In the same way that agricultural universities and agricultural extension agents worked with family farmers to modernize farming in the early 1900's, county-based health change agents (organizations linked to a local health department) could develop strong relationships with community primary care clinicians to transform health care at the local level.[223] Such a coordinated effort would help facilitate health infrastructure development in local communities and accelerate the adoption of innovations and best practices in public health, particularly with regard to health care delivery and the effective utilization of health information technology. The ARRA established a Health Information Technology Extension Program to assist health care providers to implement and effectively use certified electronic health records (EHR) technology. This could serve as a foundation for providing an extensive program to revitalize primary care and community health.

Summary:

The most important measure of our health system is its capacity to prevent disease and promote a culture of wellness for all Americans.

The most important measure of our health system is its capacity to prevent disease and promote a culture of wellness for all Americans. Chronic disease has reached epidemic proportions in the United States, yet is in large part preventable. A national prescription to prevent disease and promote good health requires personal, social, and corporate responsibility. Partnerships between the government and the private sector are needed to build infrastructure that facilitates healthy lifestyles and incentivizes Americans, employers and health care providers to implement health in all practices and policies to create a culture of wellness in the United States. By putting prevention into practice, the government, together with the private sector and the American people, can pave the way for a healthier future in the 21st century.

3. PROMOTING GLOBAL HEALTH AND HEALTH DIPLOMACY

Introduction

Over 2 million people cross national borders every day, making the spread of a disease only a jet plane away. Global markets lead to the worldwide movement of foods, medicines and technology, and the pollution of air or water supplies in one country affects the health of people in another. Ultimately, America's health and global health are interdependent. For these reasons, our common humanity compels and our national security requires that global health be a critical priority for the U.S. government. Furthermore, the sharing of our medical and scientific knowledge serves as an important and positive element of U.S. foreign diplomacy.

Over the past decades, the United States has committed vital resources to global health. Federal government funding for global health programs has more than doubled in recent years, rising from $4.36 billion in FY 2004 to $9.64 billion in FY 2008 (a $5.3 billion increase).[224] The President's new Global Health Initiative commits $63 billion over six years to build a new 21st century model of global health investments that integrates the previous focus on diseases including AIDS, TB and malaria with health systems strengthening, maternal and child health, and additional initiatives to meet the Millennium Development Goals set by the United Nations.[225] Although the United States is the single largest donor of international health assistance in the world, accounting for 25% of all bilateral commitments in 2006, America still ranks only 10th when its contribution is computed as a percent of donor economies.[226] An enhanced Federal focus on global health is supported by public opinion. In the midst of an economic recession, two-thirds of the American public support maintaining (32%) or increasing (34%) current levels of spending on efforts to improve the health of people in the developing world.[227]

The current role of the United States in global health is multi-dimensional. America serves as a donor to low-middle income countries (LMICs), provides technical assistance and health professional training, conducts research, designs development initiatives, engages in health diplomacy efforts, and partners with a range of organizations (governments, foundations, NGOs, business and international health agencies) to achieve specific goals. However, while our nation's investments have resulted in significant accomplishments in advancing global health, there continues to be a lack of integration and synergy across government agencies, which creates an implementation gap between the knowledge and resources available in the United States and our nation's effectiveness in addressing global health challenges.

Given the complexity of global health issues and the need for infrastructure to address them, the Administration, Congress, and the variety of U.S. stakeholders should build on the progress made in recent years. More than 2 million people in LMICs are now on AIDS medications, and the PEPFAR program has averted more than 1.2 million deaths.[228] The lessons learned from the past several decades in global health and development must be put into practice by establishing a unified strategy for priority setting and effective implementation of our nation's global health assistance.

The United States requires a re-engineered Federal global health architecture built on evidence-based policies and an intensified commitment to improve global health as a strategic and value-driven goal for U.S. foreign policy. In creating this path forward, it is necessary to address both the obstacles

and opportunities for progress in global health, with particular emphasis on: (1) an enhanced role for health and health diplomacy as important elements of U.S. foreign policy; (2) reorganization of the U.S. federal government architecture for promoting and financing global health initiatives, including a re-engineered and revitalized role of the U.S. Agency for International Development (USAID) as the government's lead international development agency; (3) support for health systems strengthening in low- and middle-income countries (LMICs); (4) investments in development of the health workforce and health research globally, especially in LMICs; and (5) mechanisms to measure the impact and effectiveness of U.S. foreign health assistance.

Create an inter-governmental strategy for U.S. international development and foreign policy with health and health diplomacy serving as a central tool of "smart power." The mission to ensure good health globally knows no borders; indeed, the goal of better health can bring nations together as well as provide a foundation for social and economic development. Over the last decade, significant advances have been made in advancing the United States' efforts to improve health worldwide, through the establishment of PEPFAR, the Global Fund to Fight AIDS, Tuberculosis and Malaria, and the President's Malaria Initiative, among others. Nevertheless, investment in global health remains one of the more underutilized tools in public diplomacy and foreign policy.[229] A U.S. National Strategy for Global Health and Health Diplomacy should be developed to address emerging needs in global health 10-15 years from now, how the United States will get there, and how to best collaborate across federal agencies and with outside partners. U.S. agencies have supported global health efforts in over 100 countries, with particular emphasis on those with the poorest economies, those that are most profoundly affected by health problems, and those that have important U.S. strategic and security interests.[230] In the 21st century, 'smart power' means true collaborative activities with partner countries, private sector entities, and multinational organizations. It is not power that drives such commitments, but rather, the recognition and sharing of common interests.

The mission to ensure good health globally knows no borders.

To increase its effectiveness, the United States should strengthen its partnerships with other relevant stakeholders, including private businesses, philanthropies, universities, faith communities, and Diaspora groups to advance health at the regional and country level. Global health assistance should be coordinated with economic development strategies in the public sector, especially with education, and emphasize the development of a robust civil society. While increasing its policy consistency across government, the United States should expand beyond its tendency towards unilateral actions and engage more effectively with key multilateral technical organizations, including the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), the United Nations Development Program (UNDP), the United Nations Population Fund (UNFPA), the Food and Agriculture Organization (FAO), and the World Food Program (WFP), as well as multilateral initiatives such as the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), the Global Alliance for Vaccines and Immunization (GAVI), and development banks, including the World Bank and smaller regional institutions. Coordination with both bilateral and multilateral agencies will leverage America's effectiveness, standing, and credibility as a world leader.

U.S. government assistance must be increasingly driven by the priorities and health realities of recipient governments themselves. The Paris Declaration on Aid Effectiveness clearly articulates a set of principles for effective donor behavior agreed upon across the leadership of donor and

recipient countries.[231] The reality of implementing these principles still needs much work. The United States could play a significant role with other donors in creating stronger, more effective partnerships for smart investments and sustainable development in health and other key areas. (While infectious disease control remains vitally important to the health of countries, the rapid rate at which chronic disease rates are rising creates an additional burden to the health systems of these nations, as they account for nearly 50% of all deaths in low and middle-income countries).[232] Many countries are calling for investments in addition to those that address HIV/AIDS to strengthen their overall health systems and workforces to prepare them for future health realities.[233]

The United States should also bolster the education, research, and training infrastructure for global health and implementation science. University, public health, and medical school curricula must include a broad focus on global health issues, with further expansion of the curriculum for specialized degree-seekers to include global health competencies. Furthermore, training in health diplomacy should be included in global health curricula through multiple disciplinary fields, including international relations, public health, military and defense, anthropology, and economic development. This multidisciplinary approach will provide future health and foreign affairs professionals with an enhanced global health perspective and allow them to address global health as a pillar of foreign policy.[234]

Develop an integrated U.S. global health policy architecture and Inter-Agency collaborative framework for pursuing global health initiatives. Although U.S. government funding for global health experienced a 121% increase from FY 2004 to FY 2008, it represents only a small fraction (<1%) of the overall federal budget, as does foreign aid in general.[235] The Administration's FY 2011 budget request calls for a $9.6 billion investment in the President's new Global Health Initiative.[236] However, the impact of funding to date and the potential for future investment is less than it might be because of the fragmentation of development activities across the relevant federal agencies and the general lack of coordination for global health across the U.S. government. As a unified strategy is developed, a new Federal Inter-Agency framework should also be established to facilitate coordination and information-sharing among different federal government agencies critical to a cohesive global health agenda and investment of U.S. official development assistance (ODA) in order to build accountability, improve outcomes, and support country-specific needs.

The U.S. government's global health architecture includes multiple executive branch departments, including State, Health and Human Services, Defense, Homeland Security, Labor, Commerce, and Agriculture; independent federal agencies, such as the Millennium Challenge Corporation, Environmental Protection Agency (EPA), Peace Corps, and USAID; and several multi-agency initiatives including the PEPFAR, the President's Malaria Initiative, the Program on Neglected Tropical Diseases, the Water for Poor Act and the Pandemic Influenza Action Group, as well as the myriad of NGOs funded by U.S. ODA (74% of registered nonprofits work in global health).[237] More than fifteen Congressional committees have jurisdiction over global health programs, particularly those governing foreign assistance and public health programs.[238]

Though foreign policy leadership resides in the U.S. Department of State, major funding streams for selected global health initiatives are managed through foreign assistance agencies including USAID, and the deepest expertise in health matters resides largely in the U.S. Department of Health and Human Services (HHS) and other health-related agencies, such as the Department of Agriculture (DoA) and the Environmental Protection Agency (EPA). The Office of the Global AIDS Coordinator at the U.S. Department of State provides leadership in administering the PEPFAR

program. Additionally, about 22% of all U.S. ODA is currently delivered through the Department of Defense (DoD).[239] It is important to increase understanding about how DoD resources should be best utilized, especially in crisis response, and how to integrate the DoD into the U.S. government-wide global health framework.

To assure the necessary coordination and synergies across this complex set of actors, a new organizational focus is needed within the White House to more clearly define how best to involve each agency and organization in the President's Global Health Initiative and health related global programs. In late 2009, a Presidential Study Directive established a Federal Interagency Council to perform a government-wide review of U.S. global development policy, including global health, and to make recommendations for strategies on smart federal investments in these areas.[240] While this activity is being coordinated by the National Security Council, a Quadrennial Diplomacy and Development Review (QDDR) is simultaneously being carried out under the direction of the Secretary of State and leadership of the Deputy Secretary for Management and Resources, with co-chair involvement of the Administrator of USAID and the Director of the Office of Policy and Planning at the State Department. These reviews seek to develop effective strategies for diplomacy and development.[241] The QDDR will serve as a guide towards formulating policies, deploying staff, and allocating resources and authorities for development. The results and recommendations of the Review will contribute to efforts aimed at developing a "whole-of-government approach."[242] However, the manner in which the global health architecture will be developed within these reorganization efforts must be further elucidated.

As part of an integrated global health policy strategy and a new interagency framework for global health programs, the Commission recommends applying a "Health in All Policies" approach to ensure that health is an integral concern in the policies and programs of all agencies engaged in the development sector. A Deputy Director of the National Security Council for Development and Global Health should be appointed to coordinate Federal programs. Additionally, experienced senior health officials should be appropriately placed in the U.S. Department of State (where a Special Envoy for Health or other position might be established), HHS and USAID to facilitate innovation, coordination, and development of initiatives and to bring global health to the forefront of these critical agencies, linking them effectively to each other and NSC leadership.

Promote collaboration on global health between and among the public and private sectors. The principles of health diplomacy call for building bridges between the governmental and private sectors within the United States, synergizing efforts of non-governmental organizations (NGOs) and harmonizing the work of government agencies with NGO's to allow them to work together effectively to improve public health.[243] From 1990 to 2006, the percentage of global health resources committed to LMICs through NGOs nearly doubled (from 13% to 25%),[244] and the rise in the number of public-private partnerships (90 international health sector partnerships in 2003) has changed the landscape for global health.[245] This is particularly true for infectious disease prevention and control, as two public-private partnerships, The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and the Global Alliance for Vaccines and Immunization (GAVI), accounted for more than 12% of health aid in 2007.[246]

The State Department's Global Partnership Initiative aims to forge linkages between and among U.S. and foreign government agencies, UN organizations, international/regional finance institutions, donor agencies, academic institutions, religious organizations, foundations, multi-national businesses, trade associations, unions, non-governmental organizations, civil society organizations,

and individual major donors or investors, foundations, and private enterprises. The goal is to avoid duplicating efforts to fund development and global health initiatives, to strengthen critical government capabilities, and to support more effective public-private sector partnerships combining their resources to advance health at the national and global level. Such efforts should be supported.

Work with multilateral international institutions to create a focus on health systems strengthening to ensure sustainability. U.S. global health policy should move beyond a strictly vertical, disease-oriented set of initiatives focused on care for individuals by adding a complementary focus that integrates population health to create and strengthen sustainable health systems in low and middle income countries.[247]

The private sector plays a significant role in the personal health care system in many countries, particularly in fragile states with poor economies. For example, in many countries in Africa and India, at least 50% of the population receives health care from the private sector. However, the public sector's role in health care is still significant, and ministries of health remain important in assuring broader public health services, including the kinds of intergovernmental cooperation for health results that "health in all policies" can produce. In addition, health ministries in countries must be strong enough to advocate for resources and set and regulate quality standards that apply to public and private sectors alike. The international community needs to put more emphasis on quality-control of the private sector in developing countries.

Though significant progress has been made as a result of U.S. programs that have had a disease focus, including the more than 1.2 million lives saved by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR),[248] such initiatives do not always foster progress in all components of health development. The health care infrastructure developed for HIV/AIDS should help to facilitate the availability and effectiveness of other urgently needed health care interventions for a range of health concerns while continuing its lifesaving focus on AIDS, malaria and TB.[249]

Health diplomacy offers a much-needed opportunity to build bridges between and among the governments of the world and the private sector.

The lessons learned from PEPFAR and the improvements specified in its reauthorization plan, based on the three pillars of prevention, integration and improving health systems, can serve as a foundation for building other initiatives and multi-sectoral efforts. The United States should utilize local capacity and support countries in their efforts to improve basic public health interventions to reduce current high disease burdens; enhance the local health workforce (the global deficit of doctors, nurses and midwives is 2.4 million,[250] an issue that the 2008 PEPFAR reauthorization attempts to address by calling for the training of 140,000 new healthcare workers in 15 target countries through FY 2014[251,252]); increase access to immunizations and other treatments; build facilities; and develop a public health strategy that focuses on equitable distribution of clean water, improvements in maternal and child health, adequate sources of nutrition, and preventive health services.

President Obama has recently articulated that the United States will not invest in diseases in isolation, and added a broadened mandate in his $63 billion, 6-year (2009-2014) Global Health Initiative, with direct funding beginning in 2011. The GHI aims to provide an integrated approach that combines fighting diseases such as AIDS, TB and malaria with programs to enhance population

health, reduce maternal and infant mortality, meet the UN Millennium Development Goals, and engage in health systems strengthening.[253] For these efforts, the definition of "health systems" must be further clarified and incorporate four dimensions: (1) personal health care, (2) population health, (3) health research, and (4) health in all policies, so that all of the critical determinants of health can be addressed. To realize the goals of the Global Health Initiative, the Administration and Congress should also expand investments across a range of global health programming, while preserving its commitments to eradicating diseases including HIV/AIDS, TB, and malaria.

The programs proposed by the GHI should be supported along with adequate evaluation of the effectiveness of U.S. global health investments, including the specific call for *concurrent* continuation and expansion of health systems improvement efforts with strengthened HIV/AIDS programming, the latter of which can be used as a model for the former,[254] as promised in the reauthorization of PEPFAR. Commitments to such initiatives should be strengthened, integrated and sustained in order to maintain the progress made in recent years in simultaneously saving lives and building the capacity in countries to promote better health worldwide.

Develop a new administrative and financial management model architecture for U.S. foreign assistance to produce a more demand-driven, performance-based delivery system with greater transparency. The U.S. foreign assistance model has remained largely unchanged since 1955. Few U.S. programs have built-in, jointly agreed upon strategies between the United States and recipient nations or explicit plans for developing the capacity of the recipient country that can facilitate the transition of program ownership. As a result, foreign assistance has often led to increased dependency and aid provision that does not always reflect recipient countries' needs. Funding allocations should be performance-based and ensure that every program receiving funds is consistently monitored and evaluated for its progress in delivering high-quality services to recipient nations.

The *Initiating Foreign Assistance Reform Act of 2009* directs the President to develop a system to monitor and evaluate the effectiveness of U.S. foreign assistance, as well as implement a National Strategy for Global Development, which stresses U.S. contributions to the economic growth of developing countries and response to foreign humanitarian crises.[255] This constitutes a step in the right direction, and the Act should place an even greater emphasis on adding performance measures for institution enabling and strengthening to promote long term program sustainability and balance the current emphasis on short term statistical reporting for service delivery.

The Global Fund, with its focus on country lead planning and oversight, coupled with stringent multilayered financial and performance review, could serve as a possible model for administration and management of U.S. foreign assistance. A U.S. model would need to link such a financial and administrative structure to its commitments for technical assistance and institutional capacity building that are not currently a part of the Global Fund's mandate. Likewise, while Congress has historically favored immunization and other discrete disease oriented programs over institution and capacity building as components of foreign assistance, foreign aid legislation should be updated to support new models of assistance and a broader agenda reflecting the health needs and priorities of the recipient countries. These updates should include increased emphasis on the recipient government's stewardship and strengthening of health systems, the training of health care workers, as well as the improvement of the quality of the health facilities and the care they provide. Furthermore, extension of the Global Fund's priorities to address the Millennium Development

President Franklin D. Roosevelt once said, "the test of our progress is not whether we add more to the abundance of those who have much; it is whether we provide enough for those who have too little."

Goals (MDGs) and chronic disease prevention – or a new fund to address these priorities – might also be considered.

Summary:

President Franklin D. Roosevelt once said, "the test of our progress is not whether we add more to the abundance of those who have much; it is whether we provide enough for those who have too little." By prioritizing and effectively coordinating activities to fund global health as a core element of its foreign policy agenda, the United States will continue to make critical contributions to advancing humanitarian, economic, and national security goals for a healthier, more prosperous, and interconnected world.

4. STRENGTHENING U.S. MEDICAL AND PUBLIC HEALTH RESEARCH

Introduction

Medicine and public health have advanced remarkably in the last century, moving from basic measures such as sanitation to modern sciences that now include a substantial toolkit for extending and improving human life. Despite dramatic achievements, however, our best health care is available to only some fortunate individuals and remains either out of reach or insufficient to prevent, treat, or cure many of the most devastating illnesses for a significant number of people in the United States and worldwide. Looking forward, the nation must examine what actions are needed to build and apply the medical knowledge that will ensure the health of all Americans over the next century.

Medical and Public Health Science in the 21st Century

Basic science research is essential to improving health. A fundamental understanding of biological processes has been the primary driving force behind advances in medicine and public health in recent decades. With substantial support from the U.S. government, research has revealed a great deal about how molecules, cells, tissues, organs, and the human body function. This significant leap forward in fundamental understanding has moved medical science and public health from primitive interventions such as leeches and homemade potions at the beginning of the 19th century to the current toolkit of medical and public health practice. However, despite dramatic advances over the past one hundred years, many of the body's major processes are still "black boxes," with much yet to be unraveled about their mechanisms of action. Investments made in the years ahead to understand such key areas as the brain, human behavior, the immune system, sex differences, and aging will benefit current and future generations.

Investigations of basic disease mechanisms make up a second tier of medical research. In order to address a disease or medical condition, it first needs to be understood. Moving beyond fundamental knowledge of biological processes, there is a careful and critical science of discovering how diseases are acquired, how they progress, and how they cause pathological responses. For some diseases, the understanding of such processes is now well developed. For others, knowledge is still in its infancy. As a second step in the pipeline toward medical progress, basic science disease investigations have and will continue to serve a central connecting role in our national research portfolio.

"Translational research" refers to the body of science that uses fundamental knowledge of biology and disease mechanisms to develop interventions for medical and public health practice. Translational research has presented unique challenges of merging scientific investigation with the development of medications and other interventions that can be used in the clinic and community. Despite these challenges, a series of breakthroughs in medicine that derive from translational research have been a major component of improvements in the quality of life and gains in life expectancy in the United States and many countries worldwide over the past several decades.

Public health research addresses the key role that behavioral, social and environmental factors play in illness and improves our understanding of the causes, treatment and prevention of disease. Through the identification of risk-enhancing and protective factors, this research develops and evaluates interventions to prevent chronic and infectious diseases as well as injuries, including

strategies to improve health over the long-term. Public health research is a critical component of the science of health care delivery, identifying methods to change health behaviors— not just of patients, but of doctors, nurses, and the system in which health care services are delivered. In this regard, comparative effectiveness research informs medical decision making by evaluating a broad range of interventions to help produce better outcomes, safety, and services at a lower cost.

Investments in basic science, public health and health delivery systems research will pay dividends on both a national and global scale. Chronic and infectious diseases know no borders and have the potential to threaten the health, economy and security of our nation and world. Global health research involves not only biological, disease mechanism, and translational research, but also the study of best practices in the implementation and coordination of comprehensive government and private sector initiatives, including the monitoring and evaluation of these efforts.

Scientific Research as an Engine of Economic and Social Progress

Broadly examining progress in the last century, it is clear that scientific research conducted in the United States has led to a majority of key discoveries and innovations that have transformed daily life on a worldwide scale. During this time period, long-term investments in research and scientific infrastructure have been a significant driver of America's economic competitiveness, productivity, and national security. If we are to remain competitive in an increasingly technology-driven global economy, the United States must strengthen its investments in science.[256]

In medicine and public health, U.S. research investments have contributed beyond their significant economic impact, serving also as an engine of societal progress and as the foundation for health care reform efforts. Although biomedical, behavioral, epidemiologic, and health services research are vital components of a national prescription to improve health, these areas have been underfunded in the last five years. Budget shortfalls at the National Institutes of Health (NIH) and other governmental agencies that support scientific research have had a negative impact on the conduct of science as well as on the recruitment, training, and retention of the next generation of researchers, engineers, and physicians. If this trend is not reversed, America's leadership, competitiveness and potential contributions to advancing health and medicine will be diminished in the 21st century.

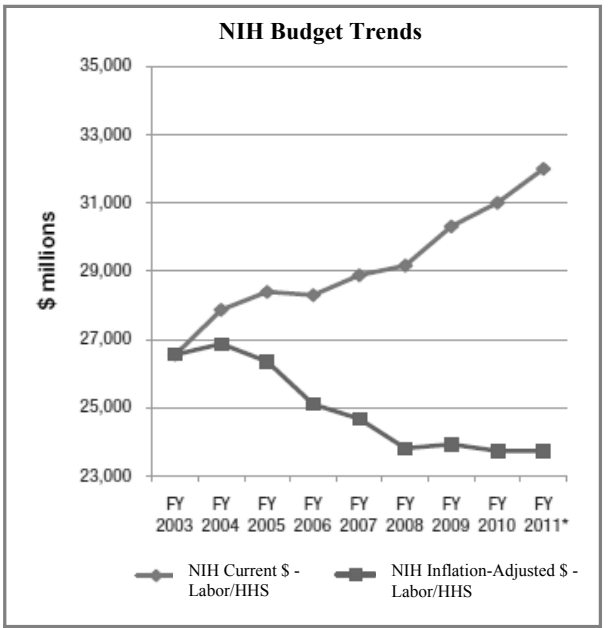
If we are to remain competitive in an increasingly technology-driven global economy, the United States must strengthen its investments in science.

The *American Recovery and Reinvestment Act (ARRA) of 2009* significantly increased funding for research in Fiscal Years 2009 and 2010. The legislation provides $10.4 billion of supplementary funding at the NIH ($8.2 billion in support of scientific research priorities)[257] over this two-year period[258] and more than $12 billion for other agencies including the National Science Foundation (NSF).[259] The Administration's most recent NIH budget request increases the agency's enacted FY 2010 baseline $31 billion budget[260] to $32 billion for FY 2011.[261] However, this proposed amount still falls short of the $36 billion that NIH received in FY 2010, as a result of the ARRA funding combined with its actual budget for that year.[262] This boost in financial support provided by the Recovery Act should be the catalyst for innovative research for years to come, *if* it marks the beginning of sustained increases in research funding. A short-term spike in support without

continued increases in post-stimulus funding will have a far less significant impact on the sciences and on fostering the career development of new investigators.

The new Administration has emphasized a commitment to strengthening research infrastructure and investments in the United States. The President's announced plan to invest more than 3% of the GDP in science is commendable,[263] but must be linked to an implementation strategy that will sustain funding for research in the years ahead. Such investments are essential to building and renewing physical infrastructure for scientific investigation, and attracting a talented research workforce with an innovative vision for the future. Supporting the best medical science and public health research is essential for economic growth and job creation, health promotion, and building human capital in the United States.

Create a National Strategy for sustaining investment in research. Research and innovation in medicine and public health serve as economic drivers, with significant direct and indirect impacts on major sectors of the economy. President Obama has stated that "reaffirming and strengthening America's role as the world's engine of scientific discovery and technological innovation is essential to meeting the challenges of this century."[264] There is an urgent need to reverse the recent declines in public and private support for health and medical research in the United States[265] and to communicate to the public and to policymakers the contributions that scientific research makes to advancing medical care, public health, and the economy.



Funding for overall NIH research, FY 2003-2011 (proposed), in current (top line) and inflation-adjusted dollars. The bottom line shows funding in constant 2003 dollars and demonstrates a progressive loss in purchasing power for overall health research financing. This figure reflects base NIH resources and do not include two-year additional funding provided by the *ARRA*.
(Source: National Institutes of Health)

Erratic funding for biomedical research has severely crippled the field with below-inflation funding at the NIH and other science agencies over the last several years. Although the NIH experienced budget doubling from FY 1998-2003, particularly enhanced by sustained yearly budget increases of 14-16% during that time period,[266] such momentum has not been sustained in recent years. In fact, from 2004-2006, the NIH budget grew only 2-3% each year.[267] By FY 2008, the purchasing power of the NIH for research grants was significantly lower than FY 2004 levels for the agency.[268]

Stricter paylines for grants have resulted in a decrease in the numbers of young investigators being supported, have prevented new innovative research from being funded, and have resulted in the termination of many creative projects that were underway. Other consequences include scientists becoming more conservative in their research projects

and young investigators becoming discouraged from pursuing research careers, which may significantly impede the nation's scientific competitiveness and progress as a result. Increased funding to train scientists must be coupled with enhanced research funding in order to fully realize success from our investments in both.

Given the increasing costs of conducting medical research, some institutions and investigators have had to terminate programs. New and innovative projects have been few and far between, while investment in creative long term scientific initiatives and their associated infrastructure has all but vanished. As a result, our nation's ability to answer fundamental scientific questions that will likely have the highest level of medical and technical impact is impaired.

There is also a significant risk of a "crash" following the increases provided to the NIH by ARRA unless a plan for sustained investments in research funding beyond 2011 is established. Increases in research funding at the National Institutes of Health (NIH) should be sustained in time beyond the ARRA stimulus funds. Specifically, the forward-looking base budget of NIH should be enhanced beyond 2011 to the combined amount of the current base level in addition to the stimulus funding provided by the Recovery Act**.** This is because the funds provided to the NIH by the ARRA essentially represent a catch-up for the agency's loss of purchasing power since 2004 as a result of flat funding.

In the immediate term, it is estimated that if funding for NIH were to be increased by 6.6% (the amount needed to begin reviving our vibrant research enterprise, offsetting decreases in NIH funding due to inflation in recent years), the economic benefit to our country could result in an estimated $3.1 billion worth of new business activity, 9,185 additional jobs and $1.1 billion in new wages.[269] Additionally, the intellectual advances created by publicly funded research will continue to lead to the creation of both small and large companies in biotechnology and other scientific/engineering fields that can then export their products to the rest of the world.

Additionally, even though ARRA provides $1.1 billon for comparative effectiveness research (CER), including $300 million for AHRQ to expand its existing collaborative "Effective Health Care" program,[270] this funding is transient and will not be sufficient for long term needs. The increases in funding for CER included in the *Patient Protection and Affordable Care Act* will ensure longer term stability for this important work in a comprehensive, inter-agency manner. A sustained funding policy will be needed to support continued work in CER by the NIH, CDC, AHRQ, NSF, and the Food and Drug Administration (FDA).

There is also a need to strengthen investments in basic science research, although there are emerging issues and opportunities that may require targeted funding, as was the case with the emergence of the HIV/AIDS epidemic and for the Human Genome Project. There needs to be a mixture of basic science discovery research and studies with a disease focus. This is even more important than it was a half century ago because major advances in biomedical science are occurring at the interface of disciplines and often a discovery in one area (e.g. diabetes) results in a finding that has major implications for innovative new treatments for another disease, such as cancer.

Because scientific research can take years to bear fruits, a major goal moving forward must be the establishment of a predictable, multi-year national funding stream of science appropriations from the Administration and Congress. The race to find better treatments, cures, and prevention strategies for cancer, heart disease, AIDS, Alzheimer's, and other illnesses – and to address global

epidemics such as AIDS, tuberculosis, and malaria – depends on robust long-term investment in health research at institutions including the NIH, CDC, AHRQ, among others.[271] The return on investment from research is an integral part of the solution to our nation's economic crisis and is needed to ensure our country's continued global leadership in advancing health and the life sciences in the future. These investments can also pay a dual dividend in other fields such as smart biofuel generation, agriculture and the development of environmental technologies.

Invest in human capital and academic education reform to drive high–impact, innovative research and fund the next generation of scientists. For medicine and public health, training of new professionals must begin at the earliest stage of primary education, and continue through adult life. In the big picture of global competition and societal needs, it is critical for the United States to produce more scientists and engineers in order to sustain its leadership in research. Unfortunately, America has seen a slow but steady erosion in its homegrown scientific talent base. As of 2003, only 12% of all college graduates held jobs in the fields of science and engineering.[272] Primary and secondary education systems are currently suffering from a wide variety of challenges: a morass of educational standards; high student-to-teacher ratios; "burnout" of quality teachers; and teacher preparation and compensation disparities.[273] Beyond the secondary level, inadequate preparation in mathematics and science prevents many students from achieving their potential, as do increased costs of science-intensive college and postgraduate education. The nation's research universities are also undergoing financial stress because of recent federal research funding cuts, which typically provide 65% of these institutions' total biomedical research funding.[274] None of these problems is easy to solve, yet all will need to be addressed if the United States is to maintain its scientific and medical leadership.

Studies and subsequent action are required to address the questions of how youth at different age levels learn about science, how to interest them in preparing for a science and information based economy, and how to facilitate the science education of students from diverse communities. This is of particular urgency, given the likelihood of a decline in the number and quality of scientists as the "Baby-Boomer" generation reaches retirement age in the next decade. Because of this trend, along with deficiencies in science, technology, engineering, and mathematics (STEM) education in the United States, the long and inflexible career tracks in science, and the unpredictability of funding for long periods of training (20+ years), it is clear that innovative budget, training, and education mechanisms are needed if America is to recruit and retain a new generation of creative scientists.

The Federal government and private foundations should encourage scientific investigation as a central educational goal starting in elementary and secondary schools. This must involve supporting teaching programs that infuse scientific and engineering creativity and innovation into the elementary, middle and high school curricula as well as college, graduate and postdoctoral education. The current K-12 education system in the United States does not adequately equip a sufficient number of students with the skills needed to pursue graduate scientific training and research careers. The President's "Educate to Innovate" extracurricular enrichment campaign to increase middle- and high-school students' interest in science, math and technology is an important step towards this goal, although it does not directly provide funds for school measures such as improving the quality of teachers.[275,276] An investment is needed in America's children, providing every child with scientific education opportunities and teaching them the responsibilities of a technological society. Scientists, educators, and the community should willingly play a major part in this; they must be engaged in the teaching process at all levels, including elementary and secondary school education. The Gates

Foundation has embarked on a series of science and technology educational efforts across the country that can serve as potential models for some communities.

The college education of scientists and engineers in the United States has been strong. We need to maintain this strength through recruitment of the best young students, providing support for institutions that stress creative and rigorous technical training and scientific learning, and through mechanisms that connect college graduates with opportunities for exciting employment and further training.

Graduate-level and post-graduate level science education needs modernization, to match a very different professional environment than existed 20-30 years ago. These will, in many cases, need to be re-conceptualized to prepare students for a much wider variety of science-critical careers. Science programs that have been focused very narrowly on training of a small cadre of academic researchers (professors) should be broadened to prepare individuals to enter a broad spectrum of valuable science-related positions, including serving as science teachers, science journalists, government staff, in private industry, and as active members of their communities. A multidisciplinary conceptual training model for post-graduate science education can also help drive innovative interventions. This multi-faceted education system would foster collaborations between medical, engineering, and business schools, involving students in the entire spectrum of activities involved in the innovation process from design to delivery to implementation. In the future, science education and training programs should be evaluated on the full impact that their graduates have on a broad spectrum of activities in society, not just on the number that enter tenure-track academic positions. At the same time, grant mechanisms and career pathways should be made more flexible in terms of requirements and time to independence in order to adapt to the potential and talents of each individual scientist, rather than the "one size fits all" approach of today.

A multidisciplinary conceptual training model for post-graduate science education can help drive innovative interventions.

Federal agencies should target their scientific budgets and programs toward promoting innovation and substantial advances at all levels, in particular by supporting early-career independent scientists. The independence of young investigators needs to be emphasized. As the age at which individuals get their first grant has increased, an age distribution and demographic shift in funding has occurred that may favor more established scientists. This phenomenon may discourage young investigators from entering the field as well as impede their career development. At a professional level, a talent pool with flexibility is also required, one that is able to adapt quickly to unexpected needs and novel opportunities. An effective scientific and technical corps in the United States is required so that this country can rapidly address existing and emerging medical and public health issues. The establishment of the U.S. Public Health Sciences Track in the *Patient Protection and Affordable Care Act*, which will award advanced degrees in public health, epidemiology, and emergency preparedness and response, is an important step forward in developing a multidisciplinary workforce.[277] Additionally, efforts are needed to attract more women and underrepresented U.S. racial and ethnic minorities to research careers.

Mechanisms are needed to allow productive and creative investigators of all experience levels to pursue what they consider to be the most promising approaches towards understanding and treating disease. Providing incentives for innovative work needs to begin at the earliest possible stages, with

substantial resource allocations for programs that allow the best postdoctoral and graduate investigators to directly pursue their own innovative research projects. Programs such as the "Pathway to Independence Awards" of the NIH, which fund about 170 post-doctorates a year for independent research, should be expanded and generalized to other agencies. Furthermore, much of the problem in fostering the career development of new investigators resides with institutional policies, not just federal funding issues. Independent research is impeded when general university operating and construction budgets are leveraged with research grant funds. Federal support for research should be designed for synergy or neutrality with respect to institutional contributions, with the goal being to de-leverage the research enterprise from other institutional needs, allowing creativity and innovation of scientists to be the major driving force shaping the research enterprise. Post-doctoral fellows should be permitted to apply for independent research grants. Additionally, medical and other professional school training must become more flexible in time and content to maximize the potential of promising young scientists to be productive and creative. Rigid professional certification processes should be adjusted, and modified peer review systems that measure early-career investigators against each other, rather than in the context of a wider experience pool, should be established.

Although training American scientists is critical to our research infrastructure, the United States has never produced all of its own researchers. Scientific enterprise and the economy in the United States have flourished over time by accepting the best and the brightest from all communities and countries. At present, over 25% of all college educated scientists and engineers and 40% of doctorate holders in science and engineering occupations in the United States are foreign born.[278] From 1995-2005, nearly 25% of science and technology start-up companies America had at least one senior executive who was foreign-born.[279]

However, with more jobs and emerging research efforts overseas, America can no longer count on a net inflow of highly trained and educated scientific and technical professionals. Although the internationalization of science has many benefits, there will always be issues and challenges here in the United States that will need to be dealt with by our scientific infrastructure. Just as America will lose some of the scientists who have trained in our universities, there is a significant need to keep an open door policy for highly-trained individuals who are not U.S. citizens, but have the potential to contribute to America's research enterprise in critical ways. There are currently significant roadblocks to bringing non-U.S. citizens to work in labs in America, posing a potentially harmful problem for the United States if not addressed. One possible mechanism to maintain the scientific strength and competitiveness of the United States is to consider awarding a "green card" to individuals who earn a PhD degree in science at an American university if they meet requisite immigration criteria. Whichever approaches are used in maintaining a productive scientific workforce, flexibility in pursuing research projects will be needed in an ever-changing national and global environment.

A coordinating mechanism should be established for comparative effectiveness research that has strong connections to AHRQ, NIH, CDC, FDA, VA, USDA and DoD to stimulate research in this field, help disseminate findings to practitioners, policymakers and consumers, and guide public policy. Comparative effectiveness research is a critical component of determining the most cost-effective medical and public health interventions, serving as an important ingredient for setting practice standards, accelerating innovative health systems redesign and encouraging innovation in health delivery. Research is needed on which diagnostic, treatment and preventive interventions are most effective. While the *American Recovery and Reinvestment Act*

(ARRA) allocated $1.1 billion to CER[280] and the Administration's FY 2011 budget request provides $286 million to AHRQ for this research,[281] a National Strategy is needed that creates a conceptual infrastructure for these studies and helps to direct the allocation of funding. An independent CER entity (the non-profit Patient-Centered Outcomes Research Institute) will be established as specified in the *Patient Protection and Affordable Care Act*. This organization could serve as an important element in building a comprehensive collaborative infrastructure to help gather results of studies conducted by Federal agencies and private sector research entities involved in the field. As also recommended by the Commission in its first report, *New Horizons for a Healthy America*, the purpose of this CER Institute is to "assist patients, clinicians, purchasers, and policy-makers in making informed health decisions by advancing the quality and relevance of evidence concerning the manner in which diseases, disorders, and other health conditions can effectively and appropriately be prevented, diagnosed, treated, monitored, and managed through research and evidence synthesis that considers variations in patient subpopulations, and the dissemination of research findings with respect to the relative health outcomes, clinical effectiveness, and appropriateness" of medical treatments and services.[282]

While conducting CER is important, the adoption of findings from such studies (the best practices of medicine and public health) is essential, but remains a complex and challenging task. Importantly, Congress should develop additional mechanisms by which CER findings are translated into effective policies, building upon the impetus in recently passed health reform legislation that directs AHRQ to support activities that develops tools for the adoption of best practices, which will improve the "quality, safety, and efficiency" of health care delivery.[283] A centralized, accessible clearinghouse of findings should be established online to help guide clinical practice and speed the delivery of research outcomes to health care providers, policymakers, and the public. Developing strategies to apply the findings from CER to guide clinical practice, policies, and reimbursement is critical to ensuring that this and other types of research have a significant health improvement and cost-saving impact in our lifetimes.

Foster the development of health care delivery systems research. While 4.5% of U.S. health care spending is devoted to biomedical research, a proportion higher than any other nation, health services research represents only 0.1% of this amount, a proportion significantly lower than that seen in other industrialized countries.[284] Health services or delivery systems research is a newer science that has a direct impact on patient treatment and care. There is a need to develop a framework that supports research on the design and outcomes of population and community-based interventions as well as on systems evaluation, components which should be emphasized in the national quality and health services delivery improvement strategy specified in the *Patient Protection and Affordable Care Act*. Encouraging research focused on the delivery system will help foster a better balance in the spectrum of research initiatives from the molecular to the macro level. This calls for a systems approach to research in the pathway from scientific development and discovery to bringing new therapeutics, diagnostics and preventive interventions to patients. An estimated 15-17 year science to service gap currently exists between the time of a new research discovery and its wide application in the community to improve the care of patients.[285] A process that engages with the FDA needs to be developed to accelerate the transfer of research findings to impact in clinical, public health, and community settings. A welcome step in this direction has arisen with the creation of the Joint NIH-FDA Leadership Council to "fast-track" research innovations to the public, which focuses on integrating regulatory and translational science as well as helping to educate the public on the value of investing in research.[286]

Additionally, without a cadre of translational scientists willing to stake their career on such long development time, it is difficult to envision how the benefits of publically funded research will accrue to patients and the healthcare system. Attractive career pathways should therefore be developed and supported for healthcare professionals dedicated to the effective translation of scientific knowledge to improve service delivery. Furthermore, academic infrastructure is needed to develop a new field that focuses on the study of health care delivery and management. A possible source of revenue for health systems delivery research might be to apply a surcharge on insurance providers, instead of solely relying on Federal research funds to support these studies.

Increase funding for behavioral and prevention research. The 1979 Surgeon General's report on health promotion and disease prevention, *Healthy People*, the United Kingdom's Black Report of 1980 and the subsequent work of the World Health Organization's (WHO) Commission on the Social Determinants of Health in 2005 have emphasized the importance of non-biomedical factors that contribute to the etiology of disease. There is a need to address these causes of illness to reduce modifiable risk factors, as 38% of all deaths in the United States are attributable to four health behaviors including tobacco use, physical inactivity, diet, and alcohol consumption.[287] Many agencies within the NIH support prevention and behavioral science research, which is coordinated by the NIH's Office of Behavioral and Social Sciences Research and the Office of Disease Prevention. However, a significant percentage of the NIH's funding for prevention research is spent on basic science studies, including genetics, which has often left the behavioral research components of major public health concerns inadequately supported. The NIH recently announced an important new initiative for a $37 million program across seven NIH institutes (Translating Basic Behavioral and Social Science Discoveries into Interventions to Reduce Obesity) that will use discoveries from basic research on human behavior to develop more effective interventions to reduce obesity.[288] Not only should the NIH further increase its support of behavioral science and prevention research with initiatives such as these, but it should also expand the scope of such research to more closely examine environmental factors.

The National Institute of General Medical Sciences (NIGMS) within the NIH has invested $16.4 million of ARRA funds to jump-start a range of research projects that address critical gaps in the basic biomedical and behavioral sciences.[289] The recently launched Basic Behavioral and Social Science Opportunity Network (OppNet), co-chaired by the Directors of NIGMS and the National Institute on Aging, is a trans-NIH initiative dedicated to expanding the agency's funding of basic behavioral and social sciences research, providing a mechanism to support cross-cutting behavioral research initiatives at the NIH.[290] While these initial investments are crucial, sustained funding beyond the short-term ARRA support is needed.

A strong body of public health and prevention research will help improve the health of the nation as well as decrease costs.

A strong body of public health and prevention research will help improve the health of the nation as well as decrease costs. Although the CDC supports the design and implementation of preventive interventions, there is currently no agency that has a significant portfolio of basic public health research. A Center for Public Health Research should be established at the CDC to support science in this area as well as new innovations in interdisciplinary studies. A joint framework involving the CDC, NIH, and AHRQ should be considered to increase the knowledge base in this important area and explore the continuum of basic and behavioral research findings to application in community settings.

Another potential strategy for increasing funding for behavioral and prevention research is fostering cross-cutting initiatives among federal agencies, including the U.S. Departments of Health and Human Services, Transportation, Agriculture, Interior, Education, Defense, and Veterans Affairs, on public health including its non-health related drivers such as socioeconomic, educational and environmental factors. Funding prevention research will provide a significant return on investment to the American people by improving their health and hopefully reducing costs as well.

Enhance investments in global health research and academic and professional scientific training in the field. The Administration's FY 2011 budget request has established global health research as one of several priority areas for the NIH.[291] Increased investments are needed to foster innovative, collaborative global health research initiatives between research institutions in the United States and in the developing world, to generate partnerships that can respond effectively to international health issues. In an interconnected world, health concerns — such as infectious diseases including pandemic flu and HIV/AIDS, and chronic illnesses — affect both industrialized and developing nations. Chronic diseases (e.g. cardiovascular disease, chronic respiratory disease, diabetes, and cancer) now account for nearly 50% of all deaths and disability in low- and middle-income countries (LMICs).[292]

Increased research, surveillance, monitoring and evaluation are essential to developing effective interventions to advance global health. A critical component of such efforts is training the next generation of scientists to address global health needs. This will require including an emphasis on global health in medical and scientific university curricula as well as providing funding in order to support the development of interdisciplinary research training. Universities can play an important role by harnessing the talent and interest of young scientists and enabling them to conduct research in international settings. Sustained increases in both government and private-sector funding are needed to synergize efforts in global health research, education, training, and service delivery. [293]

Summary:

A cornerstone of securing America's future in the 21st century is investing in scientific research and accelerating the dissemination of new advances to inform medical and public health practice as well as policymaking. Increased public awareness of the importance of supporting research to advance health and eradicate disease is needed. Our nation's long-term vision for research cannot be realized without a consistent investment strategy, which is key to maintaining our country's ability to power biomedical innovation and economic growth. Research is the foundation for building a more effective, efficient and equitable healthcare system in the 21st century and for advancing the health of people in the United States and worldwide.

CONCLUSION:
A COMPREHENSIVE APPROACH TO ADVANCING AMERICA'S HEALTH
From Peril to Progress

Although America's health care system is in crisis, a roadmap now exists with solutions and steps to navigate our country towards a healthier future. The *Commission on U.S. Federal Leadership and Health and Medicine: Charting Future Directions* at the Center for the Study of the Presidency and Congress supports a bold, unified, and comprehensive vision for innovative strategies to put *health* back into our nation's health care system.

The current complex, fragmented health system in the United States cannot be healed by isolated reforms. The Administration and Congress have made history by passing the most comprehensive health reform package since the establishment of Medicare and Medicaid in 1965. However, to be truly transformative, *all* sectors of American society must be mobilized to improve health and reduce the social and financial costs of disease in communities across the country. The success of this new direction depends upon progress in the four key areas detailed in this report: (1) re-engineering America's health care system, (2) advancing public health and prevention in the United States, (3) promoting global health and health diplomacy, and (4) strengthening medical and public health research in America. Each represents a central pillar in building a new foundation for a modern, 21st century U.S. health care system. As Ralph Waldo Emerson said, "the first wealth is health." Our nation's economy, security and progress depend on the health of its people and its communities.[294]

Our country has a unique opportunity to move the U.S. health system on a path from peril to progress. Despite the potential challenges ahead, we cannot waver from this path, nor can we fail to act. From cutting-edge medical research to the triumph of public health interventions; from engaged communities to bold government action; from agricultural to transportation policies for healthy lifestyles; and from access to quality health care for all Americans to a national strategy for global health, all of the instruments in our national toolbox must be effectively and innovatively utilized to build a healthy America in a healthy world. Only by working together across the government and private sectors - as individuals, scientists, medical and public health professionals, philanthropists, employers, journalists, and educators - can we be successful. With visionary and committed Federal leadership in partnership with the American people, our nation can move boldly towards a healthier future for all Americans in the 21st century.

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APPENDIX: COMMISSION MEMBERS, WORKING GROUP MEMBERS, AND STAFF

The views expressed in this non-partisan analysis do not necessarily reflect the views of the institutional affiliations of any or all of the members of the Commission or its Working Groups. The Commission is a forum for framing strategic and innovative ideas to help guide future directions for U.S. health and medicine. This is not a consensus document; individual members of the Commission endorsed the general policy direction, assessments, and the vast majority of recommendations in this report, though not necessarily every finding. The Commission is an initiative of the non-profit, non-partisan Center for the Study of the Presidency and Congress's Health and Medicine Program.

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Sir Richard Feachem, KBE, CBE, BSc, PhD, DSc(Med), FREng	Professor of Global Health, University of California, San Francisco, and University of California, Berkeley; Director of the Global Health Group, UCSF Global Health Sciences; Former Founding Executive Director, Global Fund to Fight AIDS, Tuberculosis and Malaria; Former Under Secretary General of the United Nations
Andrew Z. Fire, PhD	Professor of Pathology and Genetics, Stanford University School of Medicine; Nobel Laureate, Physiology or Medicine 2006
Lawrence O. Gostin, JD	Linda D. and Timothy J. O'Neill Professor of Global Health Law; Faculty Director, O'Neill Institute for National and Global Health Law, The Georgetown University Law Center; Professor, The Johns Hopkins Bloomberg School of Public Health; Director, Center for Law and the Public's Health (the WHO/CDC Collaborating Center)
Malik M. Hasan, MD	Chairman of the Board, President and CEO, HealthTrio; Founder and Former Chairman and CEO, Foundation Health Systems, Inc.

David Kessler, MD, JD	Professor, Department of Pediatrics; Professor, Department of Epidemiology & Biostatistics; Former Dean; Former Vice-Chancellor; University of California, San Francisco School of Medicine; Former Commissioner, Food and Drug Administration
Darrell G. Kirch, MD	President and CEO, Association of American Medical Colleges
Jim Yong Kim, MD, PhD	President, Dartmouth College; Co-Founder, Partners in Health; Former Professor of Medicine and Social Medicine, Harvard Medical School; Former Chief, Division of Global Health Equity, Brigham and Women's Hospital
Philip R. Lee, MD, PhD	Former U.S. Assistant Secretary for Health, U.S. Department of Health and Human Services; Professor of Human Biology, Stanford University (Emeritus)
Thomas H. Lee, MD, MSc	Network President, Partners HealthCare System; CEO, Partners Community HealthCare, Inc.; Professor of Medicine, Harvard Medical School
Len M. Nichols, PhD	Director, Center for Health Policy Research and Ethics, George Mason University; Former Director, Health Policy Program, New America Foundation
Michael P. O'Donnell, PhD, MBA, MPH	Founder and Editor-in-Chief, *American Journal of Health Promotion*
The Honorable James B. Peake, MD	Former Secretary of U.S. Department of Veterans Affairs; Lieutenant General, U.S. Army (ret.)
Peter J. Pronovost, MD, PhD	Director, Division of Adult Critical Care Medicine; Director, Quality and Safety Research Group; Medical Director, Center for Innovations in Quality Patient Care; Professor, Departments of Anesthesiology and Critical Care Medicine and Surgery, Johns Hopkins University School of Medicine; Professor, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health; Professor, Johns Hopkins School of Nursing
Harrison C. Spencer, MD, MPH, DTM&H	President and CEO, Association of Schools of Public Health; Former Dean, London School of Hygiene & Tropical Medicine; Former Dean, Tulane School of Public Health and Tropical Medicine
Elizabeth O. Teisberg, PhD, MS, ME	Associate Professor, Darden School of Business, University of Virginia

Kenneth E. Thorpe, PhD	Executive Director, Partnership to Fight Chronic Disease; Robert W. Woodruff Professor and Chair, Department of Health Policy and Management, Rollins School of Public Health, Emory University; Former Deputy Assistant Secretary for Health Policy, U.S. Department of Health & Human Services
Robert Tjian, PhD	President, Howard Hughes Medical Institute; Professor of Biochemistry and Molecular Biology, University of California, Berkeley; Co-Founder, Tularik, Inc.
Walter C. Willett, MD, DrPH	Chair, Department of Nutrition, Fredrick John Stare Professor of Epidemiology and Nutrition, Harvard School of Public Health; Professor of Medicine, Harvard Medical School
Steven Woolf, MD, MPH	Director, Virginia Commonwealth University Center on Human Needs; Professor of Family Medicine, Virginia Commonwealth University; Associate Editor for Science, *American Journal of Preventive Medicine*

WORKING GROUP ON RE-ENGINEERING AMERICA'S HEALTH CARE SYSTEM

WORKING GROUP CO-CHAIRS:

Denis A. Cortese, MD	Emeritus President and CEO, Mayo Clinic; Foundation Professor and Director, Healthcare Delivery and Policy Program, Arizona State University
Thomas H. Lee, MD, MSc	Network President, Partners HealthCare System; CEO, Partners Community HealthCare, Inc.; Professor of Medicine, Harvard Medical School

WORKING GROUP MEMBERS:

Tenley E. Albright, MD	Director, Collaborative Initiatives, Massachusetts Institute of Technology; Visiting Scientist, Massachusetts Institute of Technology
Katherine Baicker, PhD	Professor of Health Economics, Department of Health Policy and Management, Harvard School of Public Health
Joanne M. Conroy, MD	Chief Health Care Officer, Association of American Medical Colleges
Delos M. Cosgrove, MD	President and CEO, Cleveland Clinic
David Cutler, PhD	Otto Eckstein Professor of Applied Economics, Harvard University

Nancy W. Dickey, MD	President, Texas A&M Health Science Center; Vice Chancellor for Health Affairs, Texas A&M System; Former President, American Medical Association
Malik M. Hasan, MD	Chairman of the Board, President and CEO, HealthTrio; Founder and Former Chairman and CEO, Foundation Health Systems, Inc.
Darrell G. Kirch, MD	President and CEO, Association of American Medical Colleges
Len M. Nichols, PhD	Director, Center for Health Policy Research and Ethics, George Mason University; Former Director, Health Policy Program, New America Foundation
The Honorable James B. Peake, MD	Former Secretary of U.S. Department of Veterans Affairs; Lieutenant General, U.S. Army (ret.)
Elizabeth O. Teisberg, PhD, MS, ME	Associate Professor, Darden School of Business, University of Virginia
Gail Wilensky, PhD	Senior Fellow, Project HOPE; President, Defense Health Board

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WORKING GROUP CO-CHAIRS:

Susan Blumenthal MD, MPA	Director, Health and Medicine Program, Center for the Study of the Presidency and Congress; Former U.S. Assistant Surgeon General and Deputy Assistant Secretary for Women's Health, U.S. Department of Health and Human Services
Walter C. Willett, MD, DrPH	Chair, Department of Nutrition, Fredrick John Stare Professor of Epidemiology and Nutrition, Harvard School of Public Health; Professor of Medicine, Harvard Medical School

WORKING GROUP MEMBERS:

Georges Benjamin, MD, FACP, FACEP (Emeritus)	Executive Director, American Public Health Association
Lilian Cheung, DSc, RD	Lecturer, Director of Health Promotion and Communication, Department of Nutrition, Harvard School of Public Health
Susan Dentzer	Editor-in-Chief, *Health Affairs;* Health Correspondent, *The NewsHour with Jim Lehrer*, Public Broadcasting Service

Michael Dinneen, MD, PhD	Director, Office of Strategy Management, Military Health System, U.S. Department of Defense
Susan Foerster, MPH	Chief, Cancer Prevention and Nutrition Section, *Network for a Healthy California*, California Department of Public Health
Michael F. Jacobson, PhD	Executive Director, Center for Science in the Public Interest
Philip Lee, MD, PhD	Former U.S. Assistant Secretary for Health, U.S. Department of Health and Human Services; Professor of Human Biology, Stanford University (Emeritus)
Marion Nestle, PhD, MPH	Paulette Goddard Professor of Nutrition, Food Studies, and Public Health, New York University
Michael O'Donnell, PhD, MBA, MPH	Founder and Editor-in-Chief, *American Journal of Health Promotion*
Harrison Spencer, MD, MPH, DTM&H	President and CEO, Association of Schools of Public Health; Former Dean, London School of Hygiene & Tropical Medicine; Former Dean, Tulane School of Public Health and Tropical Medicine
Louis Sullivan, MD	Founding Dean and President Emeritus, Morehouse School of Medicine; Former U.S. Secretary of Health and Human Services
Steven Woolf, MD, MPH	Director, Virginia Commonwealth University Center on Human Needs; Professor of Family Medicine, Virginia Commonwealth University; Associate Editor for Science, *American Journal of Preventive Medicine*

WORKING GROUP ON PROMOTING GLOBAL HEALTH AND HEALTH DIPLOMACY

WORKING GROUP CO-CHAIRS:

Jo Ivey Boufford, MD	President, The New York Academy of Medicine; Foreign Secretary, Institute of Medicine; Professor of Public Service, Health Policy and Management, Robert F. Wagner Graduate School of Public Service; Clinical Professor of Pediatrics, New York University School of Medicine; Former Principal Deputy Assistant Secretary for Health, U.S. Dept. of Health and Human Services
Lawrence O. Gostin, JD	Linda D. and Timothy J. O'Neill Professor of Global Health Law; Faculty Director, O'Neill Institute for National and Global Health Law, The Georgetown University Law Center; Professor, The Johns Hopkins Bloomberg School of Public Health; Director, Center for Law and the Public's Health

WORKING GROUP MEMBERS:

Michele Barry, MD, FACP	Senior Associate Dean of Global Health, Stanford University; Director, Global Health Programs in Medicine, Stanford University; Director, Yale/Stanford Global Health Scholars' Program, Stanford University Site; Health Consultant Overseas Programs, Ford Foundation
Susan J. Blumenthal, MD, MPA	Director, Health and Medicine Program, Center for the Study of the Presidency and Congress; Former U.S. Assistant Surgeon General; Rear Admiral, USPHS (ret.)
Sir Richard Feachem, KBE, CBE, BSc, PhD, DSc(Med)	Professor of Global Health, University of California, San Francisco and University of California, Berkeley; Director of the Global Health Group, UCSF Global Health Sciences; Former Founding Executive Director, Global Fund to Fight AIDS, Tuberculosis and Malaria; Former Under Secretary General of the United Nations
Maria C. Freire, PhD	President, Albert and Mary Lasker Foundation; Former President and CEO, Global Alliance for TB Drug Development
Adrienne Germain, PhD	President, International Women's Health Coalition; Member, Council on Foreign Relations; Editorial Board, *Reproductive Health Matters*
Robert Nap Hosang, MD, MPH, MBA	Chair, Interdisciplinary MPH Program, Lecturer, Maternal and Child Health Program, and Faculty Sponsor, Health Environment and Development Program and International Health Specialty Area, School of Public Health, University of California, Berkeley; Founding member of the Center for Entrepreneurship in International Health and Development (CEIHD)
Andrew S. Natsios, MPA	Distinguished Professor, Edmund A. Walsh School of Foreign Service, Georgetown University; Former Administrator, USAID; Former U.S. Special Envoy to Sudan
Thomas Novotny, MD, MPH	Professor and Co-Director, Joint Degree Program (PhD) in Global Health, Graduate School of Public Health, San Diego State University; Former Medical Epidemiologist, Centers for Disease Control and Prevention (CDC); Former Deputy Assistant Secretary for International and Refugee Health, U.S. Department of Health and Human Services

WORKING GROUP ON STRENGTHENING U.S. MEDICAL AND PUBLIC HEALTH RESEARCH

WORKING GROUP CO-CHAIRS:

Andrew Z. Fire, PhD	Professor of Pathology and Genetics, Stanford University School of Medicine; Nobel Laureate in Physiology or Medicine 2006
Elias A. Zerhouni, MD	Former Director, National Institutes of Health; Senior Advisor, Johns Hopkins School of Medicine; Senior Fellow, Global Health Program, Bill & Melinda Gates Foundation

WORKING GROUP MEMBERS:

Peter Agre, MD	Director, Johns Hopkins Malaria Research Institute, Johns Hopkins Bloomberg School of Public Health; President, American Association for the Advancement of Science (AAAS); Nobel Laureate in Chemistry 2003
Nancy Andrews, MD, PhD	Dean, Duke University School of Medicine; Professor of Pediatrics and of Pharmacology and Cancer Biology, Duke University School of Medicine; Vice Chancellor for Academic Affairs, Duke University; President, American Society of Clinical Investigation; Former Dean for Basic Sciences and Graduate Studies, Harvard Medical School
Susan J. Blumenthal, MD, MPA	Director, Health and Medicine Program, Center for the Study of the Presidency and Congress; Former U.S. Assistant Surgeon General; Rear Admiral, USPHS (ret.)
William R. Brody, MD	President, Salk Institute for Biological Studies; Former President, Johns Hopkins University; Former Provost, Academic Health Center at the University of Minnesota
Bernadine Healy, MD	Health Editor, *U.S. News and World Report*; Former Director, National Institutes of Health; Former President and CEO, American Red Cross
David Kessler, MD, JD	Professor, Department of Pediatrics; Professor, Department of Epidemiology & Biostatistics; Former Dean; Former Vice-Chancellor; University of California, San Francisco School of Medicine; Former Commissioner, Food and Drug Administration
Eric Leuthardt, MD	Director, Center for Innovation in Neurosciences and Technology, and Assistant Professor, Neurological Surgery and Biomedical Engineering, Washington University School of Medicine in St. Louis; Inventor, Intellectual Ventures

Adel Mahmoud, MD, PhD	Professor, Department of Molecular Biology, and Senior Policy Analyst and Professor, Woodrow Wilson School of Public and International Affairs, Princeton University; Former President, Merck Vaccines, Merck & Co., Inc.
Peter J. Pronovost, MD, PhD	Director, Division of Adult Critical Care Medicine; Director, Quality and Safety Research Group; Medical Director, Center for Innovations in Quality Patient Care; Professor, Departments of Anesthesiology and Critical Care Medicine and Surgery; Johns Hopkins University School of Medicine; Professor, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health
Randy Schekman, PhD	Editor-in-Chief, *Proceedings of the National Academy of Sciences*; Professor of Cell and Developmental Biology, Department of Molecular and Cell Biology, University of California, Berkeley; Adjunct Professor, Department of Biochemistry and Biophysics, University of California, San Francisco; Investigator, Howard Hughes Medical Institute
Robert Tjian, PhD	President, Howard Hughes Medical Institute; Professor of Biochemistry and Molecular Biology, University of California, Berkeley; Co-Founder, Tularik, Inc.

COMMISSION STAFF

Project Director: Susan J. Blumenthal, MD, MPA, Director, Health and Medicine Program, Center for the Study of the Presidency and Congress; Former U.S. Assistant Surgeon General

Project Coordinator: Anita Verma, Special Assistant and Research Associate for Health Policy, Center for the Study of the Presidency and Congress

Former Project Coordinators: Justin B. Mutter, MSc, and Alissa C. Clarke, Center for the Study of the Presidency and Congress

Health Policy Interns and Fellows: Esther Agbaje, Sumaira Arastu, Timothy Dempsey, Marisa Dowling, Beth Hoffman, Ali Khan, Julia Liebner, Youssra Marjoua, Joshua Oppenheimer, Kathryn Pitts, Pamela Savitz, Alyson Shogan, and Chrystan Skefos; Center for the Study of the Presidency and Congress

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The Commission on U.S. Federal Leadership in Health and Medicine aims to address one of the most pressing challenges of our time: reforming and revitalizing the U.S. health care system and promoting and protecting America's health. As Robert F. Kennedy once said, "Few will have the greatness to bend history itself; but each of us can work to change a small portion of events, and in the total of all of those acts will be written the history of this generation." We hope that this collaborative work and the recommendations it has produced will help to foster a spirit of opportunity, innovation, and cooperation as the President and Congress work with the American people to achieve a healthier nation. Together, perhaps, we will find a way to bend history.

Susan J. Blumenthal, MD, MPA
Project Director and Commission Co-Chair
Director, Health and Medicine Program
Center for the Study of the Presidency and Congress
Former Assistant Surgeon General of the United States

Center for the Study of the Presidency and Congress

President: David M. Abshire, Ph.D.

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For more information, please contact: 202.872.9800, ext. 233 or healthcommission@gmail.com.

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Health and Medicine Program

1020 19th Street, NW, Suite 250 | Washington, DC 20036 | 202-872-9800 | www.thepresidency.org