

ACP[®]

AMERICAN COLLEGE OF PHYSICIANS
INTERNAL MEDICINE | *Doctors for Adults*

STRENGTHENING THE PUBLIC HEALTH INFRASTRUCTURE

American College of Physicians

A Position Paper

2012

STRENGTHENING THE PUBLIC HEALTH INFRASTRUCTURE

A Position Paper of the
American College of Physicians

This paper, written by Michelle Kline, was developed for the Health and Public Policy Committee of the American College of Physicians: Robert M. Centor, MD, FACP, Chair; Robert McLean, MD, FACP, Vice Chair; Vineet Arora, MD, FACP; Charles Cutler, MD, FACP; Thomas D. DuBose, Jr. MD, MACP; Jacqueline W. Fincher, MD, MACP; Luke. O. Hansen, MD; Richard P. Holm, MD, FACP; Ali Kahn, MD; Lindsey S. Merritt; Mary Newman, MD, FACP; P. Preston Reynolds, MD, FACP; and Wayne Riley, MD, MBA, MACP with contributions from Virginia L. Hood, MBBS MPH FACP (ACP President); Yul Ejnes, MD, FACP (Chair, ACP Board of Regents), and Donald W. Hatton, MD, FACP (Chair, Medical Practice and Quality Committee). It was approved by the Board of Regents on 16 April 2012.

How to cite this paper:

American College of Physicians. Strengthening the Public Health Infrastructure in a Reformed Health Care System. Philadelphia: American College of Physicians; 2012: Policy Paper. (Available from American College of Physicians, 190 N. Independence Mall West, Philadelphia, PA 19106.)

Copyright © 2012 American College of Physicians.

All rights reserved. Individuals may photocopy all or parts of Position Papers for educational, not-for-profit uses. These papers may not be reproduced for commercial, for-profit use in any form, by any means (electronic, mechanical, xerographic, or other) or held in any information storage or retrieval system without the written permission of the publisher.

For questions about the content of this Position Paper, please contact ACP, Division of Governmental Affairs and Public Policy, Suite 700, 25 Massachusetts Avenue NW, Washington, DC 20001-7401; telephone 202-261-4500. To order copies of this Policy Paper, contact ACP Customer Service at 800-523-1546, extension 2600, or 215-351-2600.

Executive Summary

Public health infrastructure is the underlying foundation that supports the planning, delivery, and evaluation of public health activities and practices. Public health concentrates on the health of the population rather than care of the individual patient. Public health works to protect and improve the health of communities through education, policy development, promotion of healthy lifestyles, and research to improve clinical care and injury prevention. The public health workforce's focus on population-level health distinguishes it from the health care workforce that provides clinical health care and medical services to treat individuals in clinical settings.(1) A strong public health infrastructure provides the capacity to prepare for and respond to both acute (emergency) and chronic (ongoing) threats to the nation's health. Public health infrastructure includes three key components that enable a public health organization at any level to deliver public health services. These components are a capable and qualified workforce; up-to-date data and information systems; and public health agencies capable of assessing and responding to public health needs.(2) It is imperative that we as a nation invest and maintain a strong public health infrastructure in order to ensure that appropriate health care services are available to meet the population's health care needs. Ensuring that federal, state, tribal, and local health agencies have the necessary infrastructure to effectively provide essential public health services is also part of the 2020 Healthy People Objectives.(2) Healthy People provides science-based, 10-year national objectives for improving the health of all Americans. Healthy People has established benchmarks and monitored progress over time in order to encourage collaborations across sectors, guide individuals toward making informed decisions, and measure the impact of prevention activities.

The American College of Physicians (ACP) is the nation's largest specialty society, representing 132,000 internal medicine physicians (internists), related subspecialists, and medical students. Internists specialize in the prevention, detection, and treatment of illness in adults. Our membership includes physicians who provide comprehensive primary care and subspecialty care to tens of millions of patients. ACP recognizes the difficult fiscal environment and has recommended a menu of options to achieve between \$500-800 billion reductions in federal spending related to health care.(3) To this end, ACP has developed the "High-Value, Cost-Conscious Care Initiative" that will potentially save \$700 billion annually and improve health outcomes.(4) Ensuring that public health is adequately funded is important, as funding is vulnerable to cuts at the federal, state, and local level. This paper discusses the issues and provides background information concerning the public health infrastructure. The College calls for an improved public health infrastructure that works collaboratively with physicians in order to ensure the public's safety and health. The paper presents the following public policy positions:

- 1. ACP supports investing in the nation's public health infrastructure. Priority funding should be given to federal, state, tribal, and local agencies that serve to ensure that the health care system is capable of assessing and responding to public health needs. The College is greatly concerned that recent and proposed reductions in funding for agencies responsible for public health are posing a grave risk to the United States' ability to ensure the safety of food and drugs, protect the public from environmental health and infectious risks, prepare for natural disasters and bioterrorism, and provide access**

to care for underserved populations. Congress must prioritize federal funding to ensure that federal agencies responsible for public health, including the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC), Food and Drug Administration (FDA), Health Resources and Services Administration (HRSA), the Agency for Healthcare Research and Quality (AHRQ), the U.S. Department of Agriculture (USDA), the Environmental Protection Agency (EPA), and the Substance Abuse and Mental Health Services Association (SAMHSA), are given sufficient resources to carry out their public health missions. Efforts should be made to ensure better coordination of public health initiatives across federal agencies and to reduce wasteful duplication and inefficiencies resulting from poor coordination of their activities.

2. In the current economic environment, it is particularly important that federal, state, tribal, and local agencies prioritize and appropriately allocate funding to programs that have the greatest need for funding and the greatest potential benefit to the public's health. All programs that receive funding should be required to provide an ongoing assessment of their effectiveness in improving population health. ACP recommends that priority for funding be given to programs based on their effectiveness in improving the health of the public. Specifically, ACP recommends that funding priority should go to programs that a review of the evidence shows have been effective in promoting the following critical public health objectives: (listed in no particular order)
 - a. Support safety net facilities and local health departments
 - b. Reduce health care disparities relating to racial and ethnic characteristics, cultural differences, socioeconomic, and language and literacy barriers
 - c. Encourage healthful diets and exercise to reduce obesity, particularly child obesity
 - d. Reduce smoking and tobacco-related preventable illnesses.
 - e. Reduce illnesses relating to environmental pollution, global climate change, and other environmental risks
 - f. Educate clinicians and the public on disaster preparedness, to ensure sufficient "first-responder" capacity and training, and to ensure that there is sufficient "surge capacity" at hospitals and physician offices to address a public health emergency
 - g. Reduce the incidence of food-borne illnesses, including more regulation and inspection of farms and food production facilities, more humane treatment of livestock to reduce preventable exposure to dangerous pathogens, and more effective warning and recall systems
 - h. Provide prevention and treatment of illnesses relating to alcohol, drug, and other substance abuse, including abuse of prescription drugs
 - i. Provide quality care and protection for mentally ill inmates in prison
 - j. Prevent injuries and deaths resulting from all types of violence, including best practices to prevent firearm-related injury and death

3. Having a health care workforce that is appropriately educated and trained in public health–related competencies is essential to meet the nation’s health care needs. The education and training of sufficient numbers of physicians, nurses, allied health personnel, clinical scientists, health services researchers, public health laboratorians, and public health practitioners is an important part of the public health infrastructure. Accordingly, priority funding should be devoted to educational and training programs that prepare physicians, nurses, and allied health personnel that are in short supply and that help meet the health care needs of underserved populations.
4. The public health workforce should educate the public on new health care delivery models and the importance of primary care. It is also important for the public health sector to promote the need to have a doctor or health center so care can be better coordinated.
5. To address current and looming pharmaceutical therapies and vaccine shortages, the federal government should work with pharmaceutical companies to ensure that there is an adequate supply of pharmaceutical therapies and vaccines to protect and treat the U.S. population.
6. Programs to inform the public of the benefit of vaccinations for children, adolescents and adults, to counter misinformation about the risks of vaccinations, and to encourage increased vaccination rates, particularly for vulnerable populations, are especially important for the health of the population. Evidence-based educational strategies should be used to influence behavior and increase vaccination rates. Programs to inform the public on proper use of pharmaceutical therapies and antibiotics are also important for the health of the population. In addition, adequate funding for research and development is also imperative to combat the rise of antibiotic resistance and the emergence of new diseases.
7. ACP encourages the development and implementation of a comprehensive, nationwide public health informatics infrastructure, sharable by all public health stakeholders. This will require significant investments in new and improved technologies, standards, methodologies, human resources, and education. The result should be a fundamental transformation in the roles and effectiveness of our public health resources. A specific and fundamental requirement is that the public health informatics infrastructure must be capable of seamlessly and automatically exchanging relevant data in a bidirectional manner with any Health Information Exchange (HIE) that is capable of delivering or receiving the required data. This should be the preferred option for collecting data from reporting entities. In cases where a practice does not have access to a suitable HIE, the public health informatics infrastructure must be capable of seamlessly and automatically exchanging relevant data in a bidirectional manner with any ONC-certified EHR system.

What Is Public Health and the Public Health Infrastructure?

According to the American Public Health Association (APHA), public health is the practice of preventing disease and promoting good health within groups of people, from small communities to entire countries.⁽⁵⁾ It also includes policy development and population health surveillance in an effort to keep the population as a whole healthy. A strong and influential public health infrastructure is important for many reasons. For example, a healthy public gets sick less frequently, has lower rates of absenteeism, and incurs less health care costs, resulting in better economic productivity and improved quality of life for everyone. Public health is also important in preparing for disasters and catastrophic events, such as hurricanes, tornadoes, and terrorist attacks. Public health prevention activities also educate people about the effects of lifestyle choices and how to make healthy choices. Public health professionals work in a wide array of fields, including Emergency Responders, Restaurant Inspectors, Health Educators, Public Policymakers, Scientists and Researchers, Public Health Physicians, Public Health Nurses, Occupational Health and Safety Professionals, Social Workers, Sanitarians, Epidemiologists, Nutritionists, and Community Planners.⁽⁵⁾

Public health infrastructure is the underlying foundation that supports the planning, delivery, and evaluation of public health activities and practices. A strong infrastructure provides the capacity to prepare for and respond to both acute (emergency) and chronic (ongoing) threats to the nation's health. Public health infrastructure includes three key components that enable a public health organization at any level to deliver public health services. These components are a capable and qualified workforce; up-to-date data and information systems; and public health agencies capable of assessing and responding to public health needs.⁽²⁾

Position 1: ACP supports investing in the nation's public health infrastructure. Priority funding should be given to federal, state, tribal, and local agencies that serve to ensure that the health care system is capable of assessing and responding to public health needs. The College is greatly concerned that recent and proposed reductions in funding for agencies responsible for public health are posing a grave risk to the United States' ability to ensure the safety of food and drugs, protect the public from environmental and infectious health risks, prepare for natural disasters and bioterrorism, and provide access to care for underserved populations. Congress must prioritize federal funding to ensure that federal agencies responsible for public health, including the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC), Food and Drug Administration (FDA), Health Resources and Services Administration (HRSA), the Agency for Healthcare Research and Quality (AHRQ), the U.S. Department of Agriculture (USDA), the Environmental Protection Agency (EPA), and the Substance Abuse and Mental Health Services Association (SAMHSA), are given sufficient resources to carry out their public health missions. Efforts should be made to ensure better coordination of public health initiatives across federal agencies and to reduce wasteful duplication and inefficiencies resulting from poor coordination of their activities.

The United States faces increasing challenges in promoting a healthy public, including new and reemerging diseases, bioterrorism, natural disasters, and more recently the increase in the number of individuals with chronic illness.⁽⁶⁾ A strong public health infrastructure is imperative in overcoming these challenges and

keeping the population healthy. In addition, studies have shown that spending by local public health agencies contribute to reductions in rates of community mortality from preventable causes of death, including infant mortality and deaths due to cardiovascular disease, diabetes, and cancer. This suggests that increased public health investments can produce measureable improvements in health, especially in low-resource communities.(7)

The building blocks for the public health infrastructure include various departments in the federal government, as well as the network of nearly 3,000 local public health agencies and county and city public health departments. Federal responsibilities for public health rest in the several agencies of the Department of Health and Human Services (HHS), as well as among many other agencies including the Department of Defense (DOD), Federal Emergency and Management Agency (FEMA), Veterans Affairs (VA), Department of Agriculture (USDA), Department of Transportation (DOT), the Environmental Protection Agency (EPA), and the Substance Abuse and Mental Health Services Association (SAMHSA) that also operate health programs. Adequate funding to these government agencies will help ensure that the health care system is capable of assessing and responding to public health needs. The National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC), Food and Drug Administration (FDA), Health Resources and Services Administration (HRSA), and the Agency for Healthcare Research and Quality (AHRQ) are the main federal public health agencies—all part of HHS. HHS is also responsible for the Public Health Service Commissioned Corps (PHSC), National Health Service Corps (NHSC), and the Indian Health Service (IHS). In addition to adequate funding, federal agencies should collaborate and work together to improve efficiency, reduce duplicative efforts and strengthen the public health infrastructure. The Affordable Care Act (ACA) created the National Prevention Council and called for the development of the National Prevention Strategy to realize the benefits of prevention for all Americans' health. The National Prevention Strategy involves 17 heads of departments, agencies, and offices across the federal government who are committed to promoting prevention and wellness. The National Prevention Strategy encourages partnerships among federal, state, tribal, local, and territorial governments, business, industry, and other private sector partners to improve health through prevention.(8) The College supports federal agencies coordinating and working together to increase the effectiveness of efforts, improve efficiency, and improve health outcomes.

NIH has a critical role in public health, as its mission is to seek fundamental knowledge about the nature and behavior of living systems and apply that knowledge to enhance health, lengthen life, and reduce the burdens of illness and disability. The goals of the agency are to expand the knowledge base in medical and associated sciences in order to help prevent, detect, diagnose, and treat disease and disability. The agency also works toward enhancing the nation's well-being and ensuring a continued high return on the public investment in research. NIH conducts and supports research in the "causes, diagnoses, prevention, and cure of human diseases; in the processes of human growth and development; in the biological effects of environmental contaminants; in the understanding of mental, addictive, and physical disorders; and in directing programs for the collection, dissemination, and exchange of information in medicine and health, including the development and support of medical libraries and the training of medical librarians and other health information specialists." NIH works toward its mission by conducting research in its own laboratories, supporting the research of nonfederal scientists (in universities, medical schools, hospitals, and research institutions throughout the country and abroad), helping in the training of research investigators, and fostering communication of medical and health

sciences information. NIH has two parts: the "extramural" parts of NIH are responsible for the funding of biomedical research outside of NIH, such as grants for research at academic medical centers, while the "intramural" parts of NIH are responsible for research conducted by NIH scientists.(9)

The CDC's mission is to "collaborate to create the expertise, information, and tools that people and communities need to protect their health—through health promotion, prevention of disease, injury and disability, and preparedness for new health threats."(10) It is the nation's disease prevention and wellness promotion agency, protecting people's health and safety, providing credible information to enhance health decisions, and improving health through strong partnerships. The CDC is involved with a wide range of public health programs, including emergency preparedness and response, environmental health, workplace safety and health, infectious and chronic diseases and conditions, injury prevention and control, and healthy living. To keep pace with emerging public health challenges, the CDC has begun an effort to achieve measurable impact quickly in targeted areas, termed "Winnable Battles." The "Winnable Battles" focus on public health priorities with large-scale impact on health and known effective interventions.(11) The CDC is also involved in vaccinations and making recommendations on immunization schedules. The Advisory Committee on Immunization Practices (ACIP) consists of 15 experts in fields associated with immunization selected by the HHS Secretary to provide advice and guidance to the Secretary, the Assistant Secretary for Health, and the CDC on the control of vaccine-preventable diseases. ACIP provides advice that will lead to a reduction in the incidence of vaccine-preventable diseases in the United States and an increase in the safe use of vaccines and related biological products. The Committee develops written recommendations for the routine administration of vaccines to children and adults in the civilian population.(12) ACP's medical journal *Annals of Internal Medicine* and the CDC's *MMWR Recommendations and Reports* publish the ACIP Immunization Schedule.

Another agency under HHS that is directly involved in public health is the FDA, which is responsible for protecting the public's health by assuring the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, our nation's food supply, cosmetics, and products that emit radiation. FDA is also responsible for advancing public health by helping to speed innovations that make medicines more effective, safer, and more affordable and by helping the public obtain the accurate, science-based information they need to use medicines and foods to maintain and improve their health. FDA also has responsibility for regulating the manufacturing, marketing, and distribution of tobacco products to protect the public health and to reduce tobacco use by minors. Finally, FDA plays a significant role in the nation's counterterrorism capability by ensuring the security of the food supply and by fostering development of medical products to respond to deliberate and naturally emerging public health threats.(13)

Food safety is critical to maintain the health of the American public but FDA funding is inadequate to protect our nation's food supply. On average, the FDA has only enough resources to inspect produce, seafood, or processed foods plants just once every 5 to 10 years. FDA regulates two-thirds of the food products associated with outbreaks of food-borne illnesses, yet the agency receives only 38% of the total federal budget for food safety. In addition, data-sharing limitations, incompatible data systems, and inadequate coordination hinder food-borne illness surveillance efforts.(14) ACP's policy paper *Improving FDA Regulation of Prescription Drugs* discusses the how the Administration's ability to approve and monitor new pharmaceutical therapies has been compromised by chronic underfunding, limited regulatory authority, and insufficient organizational structure.(15)

The USDA's mission is to "provide leadership on food, agriculture, natural resources, and related issues based on sound public policy, the best available science, and efficient management." The Department is also responsible for food safety by taking steps to reduce the prevalence of food-borne hazards from farm to table.(16) The USDA regulates meat, poultry, and egg products while the Food and Drug Administration oversees the other 80% of the food supply. The USDA is involved in food recalls and food-borne illness. USDA also has educational programs and information for the public on food handling and food safety. The USDA also works to improve nutrition and health by providing food assistance and nutrition education and promotion. Some programs and initiatives include the Dietary Guidance, Supplemental Nutrition Assistance Program (SNAP), HealthierUS School Challenge, Nutrition.gov, Child Nutrition Programs, and ChooseMyPlate.

HRSA is the primary federal agency responsible for improving access to health care services for people who are uninsured, isolated, or medically vulnerable. HRSA provides leadership and financial support to health care providers in every state and U.S. territory. HRSA supports programs that prepare against bioterrorism; compensates individuals harmed by vaccination; oversees organ, bone marrow, and cord blood donation; and maintains databases that protect against health care malpractice and health care waste, fraud, and abuse.(17) HRSA administers health profession programs that support the education and training of primary care physicians, nurses, dentists, optometrists, physician assistants, nurse practitioners, public health personnel, mental and behavioral health professionals, pharmacists, and other allied health providers. It also acts to improve the distribution and diversity of health professionals in medically underserved communities and to ensure a sufficient and capable health workforce. HRSA primary care programs support more than 7,000 community health centers throughout the country, improving access to preventive and primary care in geographically isolated and economically distressed communities. HRSA also supports many other important initiatives, such as maternal and child health programs, HIV/AIDS programs, family planning, and rural health programs to improve patients' access to care.(18)

AHRQ's mission is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. AHRQ supports research that helps people make more informed decisions and improves the quality of health care services.(19) AHRQ has many programs and research focuses. For example, AHRQ's Effective Health Care Program provides evidence about the comparative effectiveness of different medications and other treatments for numerous medical conditions. The objective is to help consumers, health care providers, and others make informed choices among treatment options. The program produces literature reviews, clinician and consumer guides, and other publications and resources about specific medical conditions. AHRQ has also developed a wide variety of patient safety resources, including patient safety culture assessment tools for hospitals, nursing homes, and medical offices.(20) AHRQ's innovative research is important to public health and patient safety.

The EPA's charge is to protect human health and the environment. The EPA is responsible for a wide range of issues including air quality, climate change, clean water, natural disasters, promotion of green living, and waste and land cleanup. The agency implements federal laws by writing and enforcing regulations to protect the public's health. For example, under the Clean Air Act, the EPA sets emission limits on air pollutants coming from sources like chemical plants, utilities, and steel mills. The EPA provides support for municipal wastewater treatment plants, and takes part in pollution prevention efforts aimed at protecting watersheds and sources of drinking water.(21)

The SAMHSA's mission is to reduce the impact of substance abuse and mental illness on America's communities. SAMHSA's strategic initiatives include prevention of substance abuse and mental illness; trauma and justice; military families; recovery support; health care reform; health information technology; data, outcomes, and quality; and public awareness and support. These initiatives guide programming and SAMHSA's work to help people with mental and substance use disorders and their families, build and support strong and supportive communities, prevent costly and painful behavioral health problems, and promote better health and functioning for all Americans.(22)

Federal agencies that provide vital public health services need adequate funding so they can operate efficiently, at their full potential, and achieve their goal to protect the public's health. Governmental public health agencies are the backbone of the public health system, and they are clearly in need of support and resources and must build and maintain partnerships with other organizations and sectors of society in order to be effective.(23)

Each state has its own organized public health unit, typically the state health department, which oversees the conduct of government public health programs. Public health policy coordination and proposals for federal oversight emerge from the Association of State and Territorial Health Officials (ASTHO).(24) The National Association of County and City Health Officials (NACCHO) is the national organization representing local health departments and serves a similar role as ASTHO for local health departments. NACCHO supports efforts that protect and improve the health of all people and all communities by developing resources and programs and promoting community health, environmental health, public health infrastructure and systems, and public health preparedness. Local and state health departments protect the health of communities, providing resources, monitoring performance, and providing technical assistance and surveillance functions. These programs work to reduce illness, injury, disability, and death rates; moderate the rise in health care costs; and bolster preparedness for emergencies and disasters. Collaboration among physicians and nonphysicians with local health departments, other community-based health organizations, state and local boards of health, schools, and employers will help strengthen the public health infrastructure as these institutions are most directly involved in creating the kinds of conditions in the community that facilitate healthy living.

Federal investment in state and local public health agencies builds on a core capacity at the state and local level, yet funding for public health at all levels of government has been subjected to deep cuts in recent years:

- Since 2008, 49,310 state and local public health department jobs have been lost. Federal funds for state and local preparedness have declined by 38% from fiscal year (FY) 2005 to 2012 (adjusted for inflation), and additional cuts are expected under the across-the-board cuts—*budget sequestration*—required by the Budget Control Act of 2011.(25) The Congressional Budget Office estimates that sequestration will result in additional reductions over the next ten years, ranging from 7.8% (in 2013) to 5.5% (in 2021) in new discretionary appropriations for nondefense programs, including many of the agencies that are critical to public health.(26)
- In FY 2010-11, 40 states decreased their public health budgets (29 of these states decreased their budgets for a second year in a row and 15 for 3 years in a row). Public health funding is discretionary spending in most states and is at high risk for significant cuts during economic downturns.(25)
- In addition, many communities depend heavily on local tax bases to fund public health programs, making it difficult for economically disadvantaged communities to support these activities.(7) There is also wide variation in

local funding, which results in a wide variation of public health programs in communities across the country. In FY 2010, per capita public health funding by state government ranged from \$3.40 per person in Nevada to \$171.30 per person in Hawaii. Cuts in 33 state budgets and DC in recent years have caused more disruptions in local public health programming.(27)

Sufficient, stable funding streams for the development and maintenance of local programs and activities are fundamental to successful achievement of the goals of public health. This funding coupled with sufficient human and technical resources is a socially profitable investment. Evidence indicates that a relatively small increase in public health expenditures is associated with substantial improvement in health status.(28) For example, a recent study in *Health Affairs* found that spending in local public health agencies contributed to changes in rates of community mortality from preventable causes of death. In particular, researchers found that a 10% increase in local public health spending resulted in mortality rates falling between 1.1% and 6.9% for infant mortality, cardiovascular disease, diabetes, and cancer—four of the preventable health conditions most commonly targeted by public health agencies.(7)

Position 2: In the current economic environment, it is particularly important that federal, state, tribal, and local agencies prioritize and appropriately allocate funding to programs that have the greatest need for funding and the greatest potential benefit to the public’s health. All programs that receive funding should be required to provide an ongoing assessment of their effectiveness in improving population health. ACP recommends that priority for funding be given to programs based on their effectiveness in improving the health of the public. Specifically, ACP recommends that funding priority should go to programs that a review of the evidence shows have been effective in promoting the following critical public health objectives: (listed in no particular order)

- a. Support safety net facilities and local health departments
- b. Reduce health care disparities relating to racial and ethnic characteristics, cultural differences, socioeconomic, and language and literacy barriers
- c. Encourage healthful diets and exercise to reduce obesity, particularly child obesity
- d. Reduce smoking and tobacco-related preventable illnesses.
- e. Reduce illnesses relating to environmental pollution, global climate change, and other environmental risks
- f. Educate clinicians and the public on disaster preparedness, to ensure sufficient “first-responder” capacity and training, and to ensure that there is sufficient “surge capacity” at hospitals and physician offices to address a public health emergency
- g. Reduce the incidence of food-borne illnesses, including more regulation and inspection of farms and food production facilities, more humane treatment of livestock to reduce preventable exposure to dangerous pathogens, and more effective warning and recall systems
- h. Provide prevention and treatment of illnesses relating to alcohol, drug, and other substance abuse, including abuse of prescription drugs
- i. Provide quality care and protection for mentally ill inmates in prison

j. Prevent injuries and deaths resulting from all types of violence, including best practices to prevent firearm-related injury and death

Support safety net facilities and local health departments

Local health departments and safety net facilities play important roles in our health care system. Safety net health care facilities provide care to both the insured and uninsured, and they treat patients regardless of their ability to pay. The safety net includes clinics, community health centers, public hospital systems, and state, local, tribal, and territorial health departments. The safety net may also include school and church-based health clinics, private physician practices, and nonprofit hospitals committed to serving vulnerable patients. These facilities are integral to the public health infrastructure as they are located in medically underserved communities and offer primary care services to people who often have difficulty accessing medical care. These health centers have significantly improved access to primary and preventive care for vulnerable populations.(29) Safety net facilities are also an essential foundation of the nation's emergency health system as they often serve as the only point of care in a community. These facilities were shown to be vital in the wake of such disasters as September 11th, Hurricane Katrina, the Northeast blackout, blizzards in Colorado, and the Seattle windstorm.(30)

Local health departments, including tribal health centers, have a unique view of a community's health and the factors affecting it. They bring together disparate groups, including public and private partners, to address community-wide problems affecting public health.(31) In addition, most community-based public health programs are located within community centers, health departments, and hospitals. Such programs as the Breast and Cervical Cancer Early Detection Program, Title X Family Planning Program, and the Ryan White HIV/AIDS Program provide critical services to vulnerable populations who lack access to health care.(32)

Reductions in funding for community health centers can have significant impacts on the ability of the health centers to function, as the average health center's operating margin hovers around 1%. The American Recovery and Reinvestment Act of 2009 (ARRA) gave temporary relief to community health centers. Over 2 years, ARRA gave \$2 billion in funding for community health centers across the nation. During the first year of ARRA funding, health centers were able to reach an additional 2.1 million patients, 74% of their two-year funding target. Although this temporary funding has helped community health centers, they could be at risk of substantial funding cutbacks in the future. In addition, many community health centers rely on state government funding to sustain operations and serve increasing numbers of uninsured patients due to the economic downturn. State funding for community health centers has been declining in recent years as the nation continues to pull itself out of an economic recession and states continue to cut programs to balance their budgets.(33)

Historically, both sides of the political aisle have supported funding for health centers because of the widespread recognition of community health centers as providing quality, cost-effective primary care. The ACA makes a significant investment in the Health Centers Program by providing \$11 billion in new, dedicated funding to the program over 5 years. The intention of this money is not to supplant state and local investments in health care. Any decrease in state investment will have a negative impact on access to primary care and could prevent the health centers from growing and expanding to serve additional patients. Several research studies demonstrate that health centers

yield substantial cost savings to the health care system by reducing emergency department visits, hospitalizations, and other avoidable, costly care. In addition to providing significant cost savings, health centers stimulate the local economy. They rapidly put funds to use and create jobs in their communities. Health centers also provide critical entry-level jobs, as well as training and career development opportunities.(33)

Reduce health care disparities relating to racial and ethnic characteristics, cultural differences, and socioeconomic, language and literacy barriers

Health care disparities in the health care system contribute to overall disparities in health status that affect racial and ethnic minorities and those of lower socioeconomic status. The College is strongly committed to advocating for increased access to quality health care for all, regardless of race, ethnicity, socioeconomic status, or other factors. The sources of disparities in racial, ethnic, and socioeconomic care include geography, lack of access to adequate health coverage, communication difficulties between patients and health care professionals, cultural barriers, stereotyping, and lack of access to health care professionals. The policy paper *Racial and Ethnic Disparities in Health Care, updated 2010* outlines the College's belief that racial and ethnic disparities in health care are unacceptable and supports policies that increase access to health care for all, invest in preventive care, create a more diverse health care workforce, address societal determinants of health, and expand research into the causes and solutions regarding racial and ethnic disparities. Accordingly, the College supports programs aimed at reducing health care disparities.(34)

Racial and ethnic minorities tend to receive poorer quality care compared with nonminorities, even when access-related factors, such as insurance status and income, are controlled. In 2007–2008 more than half of Hispanics/Latinos (55.1%), two out of five African Americans (40.3%), and one-third of other racial and ethnic minorities (34%) were uninsured, compared with one-quarter of whites (25.8%). In addition, families earning more than \$84,000 annually were more likely to be uninsured if they were racial and ethnic minorities, compared with whites in the same income group. Racial and ethnic minorities are more likely to receive coverage through public programs. According to 2007 U.S. Census statistics, half of the nation's nearly 40 million Medicaid enrollees were racial and ethnic minorities.(35) The expansions to Medicaid in the Affordable Care Act and the financial aid offered through the health exchanges will help these individuals access health care. The Department of Health and Human Services and the U.S. Supreme Court have interpreted Title VI of the Civil Rights Act to require health care providers that receive federal funding ensure meaningful access to care, including providing language services such as interpreters, for national-origin minorities with limited proficiency in English.(36) In recognition of the high cost of providing these services, the College has recommended reimbursement to health care professionals for the expense of language services and the additional time involved in providing clinical care for these patients. It is imperative that these programs are fully functioning in order to address health care disparities relating to racial and ethnic characteristics, cultural differences, and socioeconomic, language and literacy barriers.

Encourage healthful diets and exercise to reduce obesity, particularly childhood obesity

During the past 30 years, there has been a dramatic increase in obesity in the United States, and rates remain high. From 1976–1980 to 2007–2008, obesity

prevalence increased from 15% to 34% among adults and 5% to 17% among children and adolescents in the United States.(37) Obesity is correlated to type 2 diabetes, heart disease, hypertension, and many other chronic illnesses. Public health programs that educate the public on healthful diets and exercise are imperative to reduce obesity in our nation. In 2010, no state had a prevalence of obesity less than 20%. Thirty-six states had a prevalence of 25% or more; and 12 of these states (Alabama, Arkansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Oklahoma, South Carolina, Tennessee, Texas, and West Virginia) had a prevalence of 30% or more.(38) In addition, substantial differences exist in obesity prevalence across racial/ethnic groups.(37) Obesity is not only harmful for the population, it has a significant economic impact on the U.S. health care system. Medical costs associated with overweight and obesity may involve direct (e.g. preventive, diagnostic, and treatment services) and indirect costs (e.g., morbidity, mortality, decreased productivity). In 2008, the medical care costs of obesity in the U.S. totaled about \$147 billion.(39) Policy and environmental strategies that support healthy eating and active living, in addition to educational campaigns, might reduce obesity prevalence and racial/ethnic disparities. In addition, programs that include ways to increase access to healthy foods and strategies to increase low- or no-cost physical activity opportunities, might also help reduce overall prevalence of obesity and reduce racial/ethnic disparities.(37) The CDC's Division of Nutrition, Physical Activity and Obesity (DNPAO) currently funds 25 states to address the problems of obesity and other chronic diseases through statewide efforts coordinated with multiple partners. The program's focus is to create policy and environmental changes that will improve the health of places where Americans live, work, learn, and play, working to build lasting and comprehensive efforts to address obesity and other chronic diseases through a variety of nutrition and physical activity strategies.(40) The Community Transformation Grants (CTG) program, run by the CDC, supports community-level efforts that promote healthy lifestyles, reduce chronic diseases, reduce health disparities, and control health spending. CTGs have been awarded to a total of 61 states and communities, including state and local government agencies and nonprofit organizations, serving approximately 120 million Americans.(41)

There are many other programs at the state level working to reduce obesity rates, such as "Montana Cardiovascular Disease and Diabetes Prevention Program" (MTCVDDPP). This program is an intensive lifestyle management program teaching participants lifestyle changes that lead to weight control, increased physical activity, and healthy eating choices. Trained lifestyle coaches support the participants and help motivate them to sustain healthy choices.(42) In 2011, 37% of MTCVDDPP participants achieved the 7% weight loss goal. Those who achieved the goal were more likely to have monitored their dietary intake frequently and increased their physical activity, highlighting the importance of supporting participants in lifestyle interventions to initiate and maintain dietary self-monitoring and increased levels of physical activity.(43) Another example of a state program is "WorkWell", which is a wellness council established by the Lincoln-Lancaster County Health Department in Nebraska. WorkWell staff provides materials and assistance to businesses in developing wellness plans for their employees with measurable goals. After 7 years of WorkWell interventions, the obesity rate for participants is less than half the comparable state and local rate in the general population.(44) These types of programs are important in educating the public in ways to reduce obesity, increase exercise, and live healthier lives.

Childhood obesity now affects 17% of all children and adolescents in the U.S.—three times the rate as the previous generation. Childhood obesity can

cause high blood pressure and high cholesterol; increased risk of impaired glucose tolerance, insulin resistance and type 2 diabetes; breathing problems; joint problems and musculoskeletal discomfort; and fatty liver disease, gallstones, and gastroesophageal reflux in children. In addition, obese children and adolescents have a greater risk of social and psychological problems, which can continue into adulthood.(45) The numbers are even higher for minority populations, where nearly 40% of African American and Hispanic children are overweight or obese. If not addressed, one third of all children born in 2000 or later are expected to have diabetes at some point in their lives and many others will face chronic obesity-related health problems.(46) There are a variety of causes for this epidemic, including environmental factors, lack of physical activity, unhealthful diets, overeating, and limited access to healthy foods. There are currently many national, state, tribal, and local programs to help make the healthy choice the easy choice for children and reduce the rates of childhood obesity. Program interventions include offering healthy foods in public schools, improving the safety of neighborhoods, and providing daily physical education in schools.(47) For example, “Shape Up Somerville” is a comprehensive effort to prevent obesity in high-risk first through third grade students in Somerville, Massachusetts. The program includes improved nutrition in schools, a school health curriculum, an after-school curriculum, parent and community outreach, collaboration with community restaurants, school nurse education, and a safe-routes-to-school program. After 1 year, the program reported successfully reducing weight gains for 8-year-old children that may be expected to reduce their risk for chronic disease later in life.

Another program to help fight childhood obesity is First Lady Michelle Obama’s “Let’s Move!” program. Let’s Move! is a comprehensive initiative dedicated to solving the challenge of childhood obesity within a generation, so that children born today will grow up healthier and be able to pursue their dreams. ACP has endorsed this initiative. The program strives to give parents helpful information and foster environments that support healthy choices. In addition, the program encourages children to become more physically active.(48) Programs like Shape Up Somerville and Let’s Move! are just two examples of the types of programs that encourage healthful diets and exercise to reduce obesity and obesity-related illness, especially in children.

Reduce smoking and tobacco-related preventable illnesses

Tobacco use can lead to nicotine dependence and serious health problems. Cessation can significantly reduce the risk of tobacco-related and smoking-related diseases. In the U.S., approximately 46 million people, or 20.6% of all adults (18 years and older), smoke cigarettes. Cigarette smoking is also the leading cause of preventable death in the U.S., accounting for approximately 443,000 deaths (or one of every five deaths) and \$193 billion in direct health-care expenditures and productivity losses each year.(49, 50) Tobacco dependence is a chronic condition that often requires repeated interventions. Adequately supporting effective treatments and ensuring that helpful resources exist is critical to reduce smoking and other tobacco-related preventable illnesses. The 2012 Surgeon General Report on Youth Tobacco Use reports a steady decline in state investment in proven tobacco prevention programs. According to the report, if states begin to invest in comprehensive programs today, youth tobacco use can be cut in half in just 6 years.(51)

Cigarette smoking is associated with various health conditions. Compared with nonsmokers, smoking is estimated to increase the risk of coronary heart disease by 2 to 4 times, stroke by 2 to 4 times, men developing lung cancer by

23 times, women developing lung cancer by 13 times, and death from chronic obstructive lung disease by 12 to 13 times.(52) Smoking is also associated with increased rates of respiratory disease, cardiovascular disease, cancer, and other reproductive and early childhood health problems.(53) In addition, exposure to second-hand smoke causes nearly 50,000 deaths each year among adults in the United States.(54) Cigarettes are not the only tobacco product associated with negative health consequences. Adverse health effects are also associated with smokeless tobacco, such as snuff and chewing tobacco. These products also contain nicotine, are addictive, and have been linked to oral and other cancers.(55)

Reducing the rates of smoking and tobacco use is a public health concern that needs support. Cessation programs that aim to prevent teens and young adults from using tobacco and programs to help individuals quit are important to decreasing the rates of preventable illnesses. Each day, approximately 3,900 persons aged 12-17 years smoke their first cigarette. Smoking use among children in this age group, as well as among adults, reflects racial/ethnic disparities and disparities in socioeconomic status. Tobacco-control efforts focused on preventing cigarette and other tobacco use among youths are critical in eliminating future tobacco-related disparities. Population-based strategies that are effective in preventing youth tobacco use should be coordinated with other community-level policies and programs. The CDC's Office of Smoking and Health runs the National Tobacco Control Program (NTCP) to coordinate national efforts to reduce tobacco-related diseases and deaths. The NTCP works on population-based community interventions, counter-marketing, program policy/regulation, and surveillance and evaluation to help reduce tobacco-related disease and deaths.(56)

The College's 2012 policy paper, *Tobacco Control and Prevention*, called for the creation and maintenance of a comprehensive tobacco control and prevention effort to ensure that a new generation of smokers does not replace those who have quit or died because of their addiction. In addition, the College called for a combination of higher excise taxes on tobacco products, better coverage and funding of smoking/tobacco cessation services, improved youth prevention efforts, prohibition on tobacco additives (such as menthol) stronger restrictions on public smoking, and steady funding of comprehensive tobacco control efforts to lead to a reduction in smoking rates.(57) Reducing the rates of smoking and tobacco-related illness is an important aspect of public health and needs adequate support.

Reduce illnesses relating to environmental pollution, global climate change, and other environmental risks

There is widespread scientific consensus that the world's climate and environment is changing. Changes include weather that is more variable, heat waves, heavy precipitation events, flooding, droughts, more intense storms (such as hurricanes), increase in sea level, and air pollution.(58) These changes have the potential to affect any health outcome that is seasonal or associated with weather and climate. Health outcomes include injuries and deaths associated with extreme weather events, infectious diseases, and respiratory illnesses. Changing weather patterns can affect health outcomes by altering the number of cases and geographic range of diseases that are water-borne, food-borne, or vector-borne; zoonotic (i.e., transmitted to humans from animals); and respiratory, in the case of diseases associated with ground-level ozone and air-borne allergens. Weather and climate change can also influence many key determinants of health, such as the availability of fresh clean water and food, which could have detrimental effects on rates of undernutrition.(59) In 2009, the College, and 17

of the world's professional medical organizations, wrote a letter urging doctors to demand that their politicians listen to the facts on climate change and act now to implement strategies that will benefit the health of communities worldwide.(60)

Pollution—air pollution, water pollution, and ground pollution—cause health problems and reduce quality of life. Air pollution comes from many sources, including smog (sulfur dioxide), greenhouse gases (such as carbon dioxide, methane), and smoke. A wide variety of sources including cars, planes, power plants, and other human activities emit these pollutants. Air pollution often causes respiratory problems, such as asthma, nasal stuffiness, throat irritation, coughing or wheezing, eye irritation, or skin irritation. Industrialized countries across the world are taking measures to limit emissions of carbon dioxide and other greenhouse gases in an effort to improve air quality.(61)

Water pollution can infect any body of water, including rivers, lakes, streams, oceans, and even our drinking water. Water pollution endangers marine creatures that live in water and those that depend on it, marine plants, and nearby human populations that depend on the water as a natural resource. Polluted water can carry water-borne disease, chemicals, and pathogens. The most common water pollution diseases involve poisoning episodes affecting the digestive system and human infectious diseases, but could cause more serious diseases, such as typhoid or organ damage.(62) In addition, there have been reports of traces of pharmaceuticals in drinking water in the U.S. In 2002, the U.S. Geological Survey (USGS) documented the presence of pharmaceuticals and metabolites of medications in many of the nation's streams. USGS also found that some of these pharmaceutical contaminants survived the water treatment process and were present in drinking water supplies. Researchers have found ill effects in fish and other aquatic animals, although the human health impact is still unknown. Pharmaceutical contamination of our waters can be prevented through proper disposal of pharmaceuticals. In 2007, guidelines for disposing of prescription drug products were issued by the White House Office of National Drug Control Policy (ONDCP).(63)

Human activities involving improper waste disposal or chemical runoff cause ground pollution, also known as soil pollution. Poisoned soil may affect people through inhalation, direct skin contact, poisoned vegetables and fruits (if grown on the soil), as well as poisoned groundwater below the soil (if consumed).(64) Improper disposal of drugs and medical devices can also cause hazardous pollution of soil and water.

Illness related to environmental pollutants is a rising concern. The EPA and public health programs have generally been effective in reducing morbidity and premature mortality due to environmental pollutants. Successful interventions have included strong monitoring, surveillance, outbreak investigation, and response. Another important aspect is successful communication strategies to disseminate timely and accurate information to health care providers, public health professionals, and the public.(59) Supporting programs that work to reduce illness and educate the public on prevention are an important aspect of the public health infrastructure.

Educate clinicians and the public on disaster preparedness, to ensure sufficient “first-responder” capacity and training, and to ensure that there is sufficient “surge capacity” at hospitals and physician offices to address a public health emergency

Disaster preparedness is an important aspect of the public health infrastructure. Successful preparedness requires ongoing funding dedicated to ensuring that

functional core public health systems are in place and that experts have the training and systems to act quickly in the face of emergencies. It also involves the ability to rapidly detect and respond to emergency disease threats and surge capacity for mass events, including assuring the availability of facilities, equipment, supplies, and trained professionals. Streamlined and effective communication for health workers and the public is also vital for basic preparedness.(25) College policy supports government agencies, including HHS, CDC, Department of Homeland Security, and FEMA to work with public health departments, hospitals, and physicians to develop model crisis management structures and plans for dealing with biological and chemical attack. Sufficient funding should be available to ensure that every community has the surge capacity to handle a sharp increase in patients from a mass casualty event. Hospitals and public health departments need funding to conduct drills on responding to a mass casualty event caused by intentional release of chemical or biological agents. Departments of public health also need adequate resources for staff training, recruitment, and retention; technology improvements; and enhanced communications with local physicians, hospitals, and other health professionals.(65)

Reduce the incidence of food-borne illnesses, including more regulation and inspection of farms and food production facilities, more humane treatment of livestock to reduce preventable exposure to dangerous pathogens, and more effective warning and recall systems

Consuming contaminated foods or beverages often causes food-borne illness and disease. Many different disease-causing microbes, or pathogens, can contaminate foods, resulting in many different food-borne infections. In addition, poisonous chemicals, or other harmful substances can cause food-borne diseases if they are present in food. There are over 250 identified food-borne diseases. Most are infections, caused by a variety of bacteria, viruses, and parasites. Other diseases are poisonings, caused by harmful toxins or chemicals that have contaminated the food, for example, poisonous mushrooms. The most commonly recognized food-borne infections are those caused by the bacteria *Campylobacter*, *Salmonella*, and *E. coli* O157:H7 and by a group of viruses called calicivirus, also known as the Norwalk and Norwalk-like viruses.(66) Unsanitary storage and handling of food can spread these diseases. An estimated 47 million Americans suffer from food-borne illness caused by pathogens each year, sending approximately 127,000 people to the hospital and killing 3,000 people.(25)

Programs to reduce the incidence of food-borne illnesses are important to public health. A prevention-based approach for food safety is essential to reduce food-borne illness. The FDA Food Safety Modernization Act (FSMA) signed into law on January 4, 2011, will set up a new, prevention-based safety system for the 80% of our food supply regulated by the FDA. In addition, this law includes new national standards for the safety of produce and processed foods, stronger inspection requirements, stricter import controls, and more FDA authorities to help the agency prevent practices that can cause food-borne illnesses.(25) Programs that monitor food-borne illness are also important. Foodborne Disease Active Surveillance Network (FoodNet) is a collaboration among CDC and 10 state health departments. FoodNet monitors trends in the burden of specific food-borne illness over time and determines the burden of food-borne illness in the United States. In addition, FoodNet disseminates information that can lead to improvements in public health practice and the development of interventions to reduce the burden of food-borne illness.(67) Other public health programs promote hand-washing and good sanitation, especially by those preparing and handling food.

Provide prevention and treatment of illnesses relating to alcohol, drug, and other substance abuse, including abuse of prescription drugs

Drug abuse and addiction are complex but treatable illnesses that affect brain function and behavior. Drug abuse can include alcohol, prescription drugs, over-the-counter medication, and other drugs. Effective treatment programs typically incorporate many components, each directed to a particular aspect of the illness. Treatment programs seek to help the individual stop using drugs, maintain a drug-free lifestyle, and become productive both personally and in society. Most patients require long-term or repeated episodes of care to fully recover from addiction.(68) According to the SAMHSA's National Survey on Drug Use and Health (NSDUH), 23.1 million persons (9.1% of the U.S. population) aged 12 or older needed treatment for an illicit drug or alcohol use problem in 2010. Of these individuals, 2.6 million (11.2% of those who needed treatment) received treatment at a specialty facility (i.e., hospital, drug, or alcohol rehabilitation or mental health center). Thus, 20.5 million persons (8.1% of the population aged 12 or older) needed treatment for an illicit drug or alcohol use problem but did not receive it at a specialty facility. These estimates are similar to those in previous years.(69) Treatment programs for illicit drug or alcohol use problems are an important aspect of public health. In addition, educational programs to teach individuals about the risks of illicit drug and alcohol abuse are important to prevent addiction.

Provide quality care and protection for mentally ill inmates in prison

The number of incarcerated persons with severe mental illness has grown tremendously in the past few decades. In addition, incarcerated persons often have medical, mental health, and drug treatment needs that prisons are ill-equipped to handle. In 2005, 56% of state prisoners, 45% of federal prisoners, and 46% of jail inmates had a mental health problem (defined as recent history or symptoms of a mental health problem).(70) Recent studies suggest that there are three times as more mentally ill persons in jail and prisons than in hospitals. An estimated 16% of inmates in jail and prisons have serious mental illness. Prison conditions are hard on mental health in general, because of overcrowding, violence, lack of privacy, lack of meaningful activities, isolation from family and friends, uncertainty about life after prison, and inadequate health services. Prisons are now the largest mental health provider in the country. However, men and women who work as correctional officers in jails and prisons apply for the job expecting to work with criminals, not individuals with serious mental illnesses. Many of the correctional officers do not understand, and have little or no training in how to work with mentally ill inmates. Consequently, the mentally ill in prison often face inadequate mental health services, leaving them undertreated or mistreated.(71, 72) In addition, inmates often face substance abuse problems along with mental health issues. For example, in 2005, 74% of state prisoners and 76% of jail inmates with mental health problems reported having substance dependence or abuse.(70) Despite the high rates of substance abuse among inmates, relatively few former prisoners reported receiving substance abuse treatment while incarcerated. More than 8 in 10 prisoners have chronic physical, mental, or substance abuse conditions upon their release from prison. Research indicates that these unresolved health and substance use problems often complicate an already challenging transition back into society, further illustrating the need for inmates to receive proper treatment for substance abuse while incarcerated. Addressing the health problems of returning prisoners has the potential to improve individual health and reentry

outcomes and benefit the communities in which returning prisoners reside.(73) ACP policy supports maximizing the collaborative efforts of correctional entities with state, county, and local health offices to best ensure the effective delivery of public health care. In addition, mentally ill inmates must receive care consistent with community standards of care and protection including specialized units as needed within the prison environment.(74) Without necessary and appropriate quality care, mentally ill and substance-dependent inmates suffer painful symptoms and their conditions deteriorate.

Prevent injuries and deaths resulting from all types of violence, including best practices to prevent firearm-related injury and death

The public health infrastructure must address prevention of deaths and injuries from all types of violence, including domestic violence, child abuse, rape and other acts of crime and violence. Violence-related firearm deaths and injuries in the United States is a serious component of this public health issue. During 2006-2007, 59,658 people in the United States were killed by firearms. A total of 34,253 of these were suicides and 25,423 were homicides. (75) In addition, there were nearly 70,000 nonfatal injuries from firearms in 2005.(76) These staggering statistics exemplify the need for public health to address violence and prevention of firearm-related injury and death. Public health should educate the public about the dangers of all types of violence, including firearms and precautions to improve firearm safety. For example, programs should educate the public about storing ammunition and firearms separately and locking them securely. Education on safe handling, including keeping the firearm unloaded when not in use, always keeping the firearm pointed in a safe direction, wearing appropriate eye and ear protection, and safe firearm operation are important to help prevent firearm-related injuries and death.(77)

Position 3: Having a health care workforce that is appropriately educated and trained in public health–related competencies is essential to meet the nation’s health care needs. The education and training of sufficient numbers of physicians, nurses, allied health personnel, clinical scientists, health services researchers, public health laboratorians, and public health practitioners is an important part of the public health infrastructure. Accordingly, priority funding should be devoted to educational and training programs that prepare physicians, nurses, and allied health personnel that are in short supply and that help meet the health care needs of underserved populations.

According to the 2003 IOM report *The Future of the Public’s Health*, governmental public health agencies form the backbone of the public health system. Insufficient numbers of well-trained physicians in this backbone weakens the entire public health system.(23) Currently, there is a growing shortage of public health workers, including public health physicians, and public health workers are inadequately prepared to face today’s public health challenges. The public health workforce comprises clinicians, health program administrators, educators, planners, policy analysts, occupational health specialists, environmental health specialists, economists, epidemiologists, biostatisticians, and laboratory scientists. These multidisciplinary professionals work in public and private settings, including government public health agencies, academic institutions, hospitals, health plans, and medical groups. In 2000, the public health workforce consisted of 448,254 workers (158 workers per 100,000 Americans), compared with 500,000 workers in 1980 (220 workers per 100,000

Americans). The workforce is still declining, and projections estimate that the U.S. will need 714,839 public health workers in 2020. In addition, projections estimate that within the next few years, state and federal public health agencies could lose up to half of their workforce to retirement, the private sector, and other opportunities.(78) Cutbacks in funding at all levels of government are also causing further retrenchments in the public health workforce. The College supports strengthening the public health workforce in order to meet the current and future public health demands.

The steady decline in the number of physicians going into internal medicine and other primary care fields in recent years threatens the public health infrastructure. Physicians are the front line in the disease recognition and diagnosis efforts that are essential for community surveillance activities. Physicians also help bridge gaps between human medicine and other disciplines, such as nutrition, biostatistics, epidemiology, psychology, veterinary medicine, and public health, through collaboration with their counterparts. Their in-depth knowledge of medically related health issues make them important allies when forming partnerships to investigate and study areas of interest to public health professionals. Physicians are vital to the public health enterprise and bring unique knowledge, skills, and competencies that add value to addressing public health problems.(23)

All physicians intersect with public health in many sectors and are part of the public health infrastructure. Training for internists in the essentials of primary care internal medicine incorporates an understanding of disease prevention, wellness, substance abuse, and mental health. The focus of internists' training is on care of adolescent and adult patients; especially those with multiple complex chronic diseases, a continuing threat to our public health. In 2006, the College called on the federal government, large employers and other purchasers, health plans, and the medical profession itself to take immediate action to create a comprehensive national health care workforce policy.(79)

Physicians are also integral to the public health infrastructure because they are able to consider their individual patients within the larger social, economic, and cultural context. Treating individual patients within their community context, including the patients' family, is important to maintaining the patient's health.(6)

Currently there are two main federal programs that provide public health services and financial assistance for the training of public health clinicians: the U.S. Public Health Commissioned Corps (PHS) and the National Health Service Corps (NHSC). The PHS is a team of more than 6,500 full-time, well-trained, highly qualified public health professionals dedicated to delivering the Nation's public health promotion and disease prevention programs and advancing public health science. PHS participants serve on the frontlines in the nation's fight against disease and poor health conditions. Medical officers in the PHS fight life-threatening diseases at home and abroad, respond to emergencies, conduct research, develop national health policies, and treat patients in underserved and disadvantaged communities. Officers are part of an elite team that fills essential public health leadership roles within the Nation's Federal Government agencies and programs.(80) The NHSC is a federal program administered by HRSA that awards scholarships and loan repayment to primary care providers in NHSC-eligible disciplines. NHSC providers, in turn, commit to serving for at least two years at an NHSC-approved site located in a Health Professional Shortage Area (HPSA). The NHSC and the Indian Health Service (IHS) help to ensure that medical, dental, and mental health providers are available to address health care needs of populations in Health Professional

Shortage Areas (HPSAs).(17) These programs depend on funding for educational scholarships and loan assistance in return for commitments for service in underserved areas.

In addition to strengthening the workforce, the College encourages improving collaborations between schools of medicine and schools of public health to foster inter disciplinary training. Public health education is currently a minor part of physicians' medical school training. It is imperative that medical schools and schools of public health work together more closely in curriculum development and in creating practice-based learning opportunities to ensure that physicians receive public health and health services research education as part of their medical school training.(6) Organizational partners should develop models to integrate training in public health principles, epidemiologic and health services research, and clinical practice with physician education at both the undergraduate and graduate level. Graduate medical education programs should identify and include relevant public health concepts and skills.(23)

Basic competency in health research and public health is important not only for physicians currently enrolled in medical education programs but also for those already practicing medicine, regardless of their specialty. Physicians can obtain education in these fields in a variety of ways and at various points in one's career. For example, physicians can receive this education through preventive medicine residencies, schools and programs of public health, the Epidemic Intelligence Service program of the CDC certificate programs, public health training networks, and public health leadership networks.(23) The College encourages sufficient funding to these programs so physicians are able to receive the necessary and important public health throughout their careers.

In addition to a shortage in physicians, there is also a shortage of nurses and other allied health care workers. Public health nurses comprise the largest group of professionals in public health, yet their numbers decreased from 39% in 1980 to 17.6% in 2000. These professionals are important in supporting our public health system as they serve a variety of roles in both private and governmental public health agencies. These nurses designate a registered nurse with educational preparation in both public health and nursing. Their primary focus is to promote health and prevent disease for the health of populations, working with communities and their residents. The current shortage is complex and results from many factors, such as an overall shortage of registered nurses, an aging population of nurses, a poorly funded public health system that results in inadequate salaries, and a growing shortage of nursing faculty adequately prepared to teach public health nursing.(81)

An inadequate supply of public health nurses has the potential to diminish services provided by the public health infrastructure. The College recognizes that nurses and primary care physicians have similar workforce issues of predicted shortages, increased proportion of clinicians practicing in subspecialties, and decreased enrollment in educational programs.(82) In 2000, 50,000 public health nurses served in governmental public health agencies—nearly 10% of the total workforce. Yet national projections indicate the need for more than one million additional nurses within the decade. In addition, public health agencies will be at a disadvantage during this period, because they frequently offer lower wages than private organizations do and will experience intense competition in hiring and retaining these essential workers.(83) In the College's 2009 policy paper, *Nurse Practitioners in Primary Care*, ACP recognized that nurse practitioners and physicians have the common goals of providing high-quality, patient-centered care and improving the health status of those they serve. The college stated that:

Workforce policies should ensure adequate supplies of primary care physicians and nurse practitioners to improve access to quality care and to avert anticipated shortages of primary care clinicians for adults. Workforce policies should recognize that training more nurse practitioners does not eliminate the need nor substitute for increasing the numbers of general internists and family physicians trained to provide primary care.(82)

The overall shortage of nurses and other allied health professionals will have a large effect on the public health workforce and infrastructure. It is vital to the existence of the total public health infrastructure that adequate numbers of well-prepared public health nurses be available to provide essential public health functions. Increased federal funding is necessary to support both academic- and practice-based educational opportunities for both the current and future public health workforce. Promoting dual training opportunities, which couple public health graduate training with other professional training, such as medicine, nursing, dentistry, and veterinary medicine, are another approach in meeting the workforce needs of the nation. (28) In addition, schools of nursing, public health training centers, and schools of public health should collaborate with state and local health agencies to provide education opportunities for nurses.

The shortage of clinical scientists and health care services researchers also threatens the nations' public health infrastructure. The laboratory scientists and technicians who work in public health laboratories conduct diagnostic testing, disease surveillance, research, and training. These professionals are vital to public health as their work includes confirming cases of emerging infectious diseases and other infections of public health importance, testing drinking water and soil for toxic substances, and screening newborns for metabolic and genetic disorders. There are approximately 20,000 public health laboratory technicians and professionals (about 3.1% of the total public health workforce).(84) There is a continued demand for laboratory scientists and technicians in the public health workforce as technology improves and more tests are conducted. Clinical scientists and health care service researchers work in both the private and public sector. For example, NIH supports intramural and extramural research by clinical scientists. Extramural grants account for approximately 83% of NIH's \$30 billion budget, and approximately 10% of the NIH budget supports NIH intramural investigators. The College recognizes that investment in public health research is vital to the advancement and growth of the field.

As technology becomes a larger part of health care and public health infrastructure, there will be a growing need for skilled health information technology (HIT) professionals. These professionals are imperative to enable the broad adoption and use of health care information technology throughout the U.S. Training a highly skilled workforce will help health care professionals, hospitals, and public health programs effectively implement and use health information technology. The Office of the National Coordinator for Health Information Technology has funded the Health IT Workforce Development Program in an effort to train a new workforce of these professionals who will be ready to work with health care workers to implement electronic health records that will improve health care quality, safety, and cost-effectiveness.(85) The College recognizes the importance of a skilled HIT workforce to support a successful public health infrastructure.

Position 4: The public health workforce should educate the public on new health care delivery models and the importance of primary care. It is also important for the public health sector to promote the need to have a doctor or health center so care can be better coordinated.

The public health infrastructure has a unique opportunity and responsibility to educate the public about the need for judicious use health care resources, the need for appropriate primary and preventive care, and changes in the health care system. All physicians and public health professionals should appropriately use and recommend health care resources in their public education efforts. Primary care should be promoted to increase coordinated, effective, and quality care. The College has long supported the critical importance of primary care in providing patients with better outcomes at lower costs. In addition, the College believes that primary care physicians deliver high-quality care, reduce mortality, provide continuity of care, and reduce health care costs, making them important participants in public health.(86) Public health should appropriately refer patients to physicians and fully utilize primary care. Research has shown that countries with better primary care access and better primary care systems have better outcomes, often at a lower cost.(87) It is imperative that patients understand primary care and its value as we move to a more primary care-centered health care system. In addition, improving patient-practitioner communication is important to improving public health and coordinated care. ACP supports effective communication among patients and practitioners to encourage shared decision-making. In addition, promoting wellness, prevention, chronic care management, changes in unhealthy behaviors and encouraging patient responsibility for health and cost-consciousness will help achieve cost savings in our health care system.(88)

Position 5: To address current and looming pharmaceutical therapies and vaccine shortages, the federal government should work with pharmaceutical companies to ensure that there is an adequate supply of pharmaceutical therapies and vaccines to protect and treat the U.S. population.

Shortages of pharmaceutical therapies have recently become an issue threatening our country. The number of pharmaceutical drug shortages reported has more than tripled since 2005, affecting all segments of health care. In 2010, over 240 pharmaceutical drugs were either in short supply or completely unavailable and more than 400 generic equivalents were backordered for more than five days. Although these did not escalate to critical shortages, this situation sheds light on the instabilities in the pharmaceutical drug supply chain. Shortages in pharmaceutical drug supply pose a public health concern as they contribute to delays in treatment and surgery, or can cause a change in care plans. In addition, pharmaceutical therapy backorders cause patients to receive substitute therapies that add expense to patient care.(89) Currently, the FDA and the American Society of Health-System Pharmacists (ASHSP) collect information and keep track of reported pharmaceutical drug shortages.(90, 91) The FDA runs the Drug Shortage Program to address the potential and actual drug shortage. This program currently employs only four full time staff and a Coordinator. The staff facilitates prevention and resolution of shortages by collaborating with FDA experts, industry, and external stakeholders. They also provide drug shortage information to health care professional organizations, patient groups, other stakeholders, and the public.(92)

In the United States, shortages of pharmaceutical therapies result from various multifaceted reasons, including industry consolidation, manufacturing or production problems, drug recalls, just-in-time inventories, and regulatory and financial pressures. In 2010 the American Society of Health-System Pharmacists (ASHP), the American Society of Anesthesiologists (ASA), the American Society of Clinical Oncology (ASCO), and the Institute for Safe

Medication Practices (ISMP) co-convened a Drug Shortages Summit. The Summit reported three main causes of drug shortages: regulatory and legislative factors; raw materials sourcing and manufacturing factors; and business and market factors. The Summit identified various regulatory barriers and ambiguities as a significant contributor to drug shortages. Such barriers include the lack of FDA authority to require notification of drug shortages, the absence of a requirement for manufacturers to notify FDA of anticipated market withdrawal, and no statutory authority for enforcing notification requirements for medically necessary drugs. Another cause of drug shortages identified was raw materials sourcing and manufacturing factors. This includes manufacturers' high-quality standards, complex drug production activities, and inability to quickly accommodate change in market demand. The Summit also identified business and market factors as causes contributing to drug shortages. These factors include consolidation of firms, which leads to fewer manufacturers for a given product, reassignment or reallocation of production lines, lack of transparency or communication about actual or possible product shortages, and lack of business incentives to enter a specific product market.⁽⁹³⁾

Another issue affecting drug shortages is the emergence of “gray markets,” where unauthorized distributors buy up available supplies and offer to sell them to purchasers (including hospitals) at significantly higher prices. Reports indicate that “gray market” distributors charge on average 650% more than usual cost for short-supply pharmaceutical therapies; however, even higher prices are seen in certain critical care areas. In addition, there are concerns that the supply chain in the “gray market” may pass from one distributor to another, creating higher prices and drug integrity concerns.⁽⁹⁴⁾ These issues create multifaceted problems in addressing the pharmaceutical drug shortage crisis. The College supports exploring the role of the FDA to help ameliorate pharmaceutical drug shortages, ensure the safety of pharmaceutical drug supply, and help protect our population. Improving communication and documentation along the supply chain (e.g., among product manufacturer, FDA, supplier, pharmacist, physician) is also imperative to help reduce and prevent shortages.

Stable vaccine supplies are essential for meeting current and future public health immunization goals. Lack of vaccine availability increases the risk of both lower rates of vaccination coverage and increasing rates of vaccine-preventable diseases. In addition, misinformation about the risks of vaccinations threatens vaccine adherence and threatens the safety of our population.

As with pharmaceutical therapy shortages, vaccine shortages can affect certain areas or the country as a whole. The CDC keeps track of vaccine shortages and delays, including vaccines in the recommended childhood immunization schedule.⁽⁹⁵⁾ In the past, the U.S. has had shortages of various vaccines including the flu vaccine, pneumococcal conjugate vaccines, tetanus vaccines, and others. Vaccine shortages or delays often occur for similar reasons as other drugs—the pharmaceutical company decides to stop making the vaccine for business reasons or cannot meet the demand for the vaccine. Another reason for vaccine shortages is that the supplier is not able to send out the vaccine through the supply chain quickly enough.⁽⁹⁶⁾ These disruptions in availability create a threat to the safety of patients and the health of the population, as physicians must decide who will receive the vaccine and who will not. The College's position paper *The Health Care Response to Pandemic Influenza* states:

ACP supports measures to increase pandemic influenza vaccine and antiviral medications in the Strategic National Stockpile. ACP supports the national procurement of vaccine in an amount sufficient to protect the entire U.S.

population and national procurement of antiviral medications to cover 25% of the U.S. population. ACP believes that additional courses of antiviral medications should be safeguarded in the Strategic National Stockpile for all public safety officers and health care workers with direct patient contact in amounts sufficient to provide prophylaxis. In the event of pandemic influenza, stockpiled vaccine and antivirals should be distributed equitably to all states' public health authorities based on the numbers of people in high-risk and high-priority groups.(97)

ACP also supports measures to increase domestic production of vaccines and antiviral medications, including providing liability protections to decrease barriers to manufacturing while maintaining protections for individuals injured from the use of vaccines and antiviral medications.

Position 6: Programs to inform the public of the benefit of vaccinations for children, adolescents and adults, to counter misinformation about the risks of vaccinations, and to encourage increased vaccination rates, particularly for vulnerable populations, are especially important for the health of the population. Evidence-based educational strategies should be used to influence behavior and increase vaccination rates. Programs to inform the public on proper use of pharmaceutical therapies and antibiotics are also important for the health of the population. In addition, adequate funding for research and development is also imperative to combat the rise of antibiotic resistance and the emergence of new diseases.

Misinformation is jeopardizing adherence to immunization schedules and recommended vaccines and is causing detrimental effects on the health of the population. Improving rates of immunization against vaccine-preventable infections across all age groups is imperative to improving public health. Vaccines have had a great impact on human health. Before vaccines, “Americans could expect that every year measles would infect four million children and kill 3,000; diphtheria would kill 15,000 people, mostly teenagers; rubella (German measles) would cause 20,000 babies to be born blind, deaf, or mentally retarded; pertussis would kill 8,000 children, most of whom were less than one year old; and polio would paralyze 15,000 children and kill 1,000. Because of vaccines all of these diseases have been completely or virtually eliminated from the United States.”(98) Recent claims that vaccines cause adverse effects, including autism, have been unsubstantiated in research.(99, 100) Myths and misinformation about vaccine safety can confuse patients and parents who are trying to make decisions about their health care.

Due to these false reports, there has been a sharp drop in the number of children receiving vaccinations. Decreased rates of vaccinations reduce the effectiveness of “herd immunity” and raise the risk of the emergence and spread of these once eradicated diseases, especially among vulnerable populations. For example, in the United States, there were more cases of measles reported in 2008 than in any other year since 1997. The CDC reported that more than 90% of those infected had not been vaccinated or their vaccination status was unknown.(99) There has also been an increase in the number of pertussis cases, another vaccine-preventable illness.(101) The emergence of once-eradicated diseases is of concern and poses a threat to children and adults alike. Accurate information is essential to enable patients to make responsible, sound decisions about their health care. Programs that work to reduce and tackle misinformation about vaccines are crucial to ensure effective vaccination rates and a healthy population.

Public health education programs should also educate the public on proper use of pharmaceutical therapies, particularly antibiotics. Antibiotic resistance is one of the world's most urgent public health problems. Antibiotic resistance can cause significant danger and suffering for people who have common infections that once were easily treatable with antibiotics. These once-easily treatable infections can cause longer-lasting illnesses, more doctor visits or longer hospital stays, the need for more expensive and toxic medications, and in some cases death. (102) It is important to discourage overuse of antibiotics, which hastens development of resistant bacteria. ACP policy states (65):

ACP believes that physicians should not prescribe drugs, including antibiotics, without medical indication. Physicians should contribute to the responsible stewardship of health care resources and their recommendations to patients must be based on medical merit. The federal government should increase its activities to educate the public about the dangers of indiscriminate dissemination of antibiotics to people who are not infected and the enhanced antibiotic drug resistance and damaging health consequences that could result from overuse of antibiotics.

In 2000, ACP launched a national campaign to reduce antibiotic resistance, which affects millions of patients. The initiative included educational content on antibiotic resistance for members, the development of clinical practice guidelines for treating diseases prone to over-treatment by antibiotics, and patient education material.(103) Public health education programs need to encourage patients to take antibiotics exactly as the doctor prescribes and complete the prescribed course of treatment. In addition, education programs should discourage inappropriate prescribing of antibiotics. This includes patients not insisting on receiving an antibiotic and health care professionals prescribing the necessary therapies for patients. For example, treating a viral infection with antibiotics, even when the patient asks for them, is contributing to the rise in antibiotic resistant infections and causing more harm to patients.(104)

ACP also has taken a stand opposing the use of antimicrobials for agricultural purposes because antibiotic resistance is an increasing public health threat in the United States and worldwide.(105)

In addition to the supply of pharmaceutical therapies, it is also important that there is adequate funding for research and development to protect the nation against supply shortage, the rise of antibiotic resistance, and the emergence of new diseases. As discussed earlier, the pharmaceutical therapy market is very complex and many economic and noneconomic factors play a role in production decisions. Funding for research and development comes from both the federal government and the private sector. The government tends to focus on basic research, whereas private firms focus much more on applied research and development. In 2005, the federal government spent \$25 billion on health-related research and development, of which only some went directly to development of new pharmaceuticals. Most of the funding went to basic research, which in turn stimulated the drug industry's spending on applied research and development by making scientific discoveries that expand the industry's opportunities. These funding patterns also help diminish the risk of direct crowd out of the private sector by the federal government.(106)

Developing a new pharmaceutical drug that contains a previously untried active ingredient can take years to develop and test. In addition, a firm must conduct extensive research and test the pharmaceutical therapy using a formal and rigorous protocol to determine its safety and efficacy. The testing can take much longer than the research and costs can be very high, with additional high

opportunity costs. It is imperative to address the shortage and the development of new pharmaceutical therapies and vaccines now. Drug development and production takes years and the industry is not currently able to handle the nation's increasing demands.

Position 7: ACP encourages the development and implementation of a comprehensive, nationwide public health informatics infrastructure, sharable by all public health stakeholders. This will require significant investments in new and improved technologies, standards, methodologies, human resources, and education. The result should be a fundamental transformation in the roles and effectiveness of our public health resources. A specific and fundamental requirement is that the public health informatics infrastructure must be capable of seamlessly and automatically exchanging relevant data in a bidirectional manner with any Health Information Exchange (HIE) that is capable of delivering or receiving the required data. This should be the preferred option for collecting data from reporting entities. In cases where a practice does not have access to a suitable HIE, the public health informatics infrastructure must be capable of seamlessly and automatically exchanging relevant data in a bidirectional manner with any ONC-certified EHR system.

Interoperable data and information systems are imperative to strengthening the public health infrastructure. Health information infrastructure is undergoing a transformation that is already changing the health care system. It is believed that a well-functioning health information technology system will facilitate new means of improving the quality, efficiency, and patient-centeredness of care. Data use is the foundation of many of health reform efforts and is contingent upon standards-based interoperable data and information systems.⁽¹⁰⁷⁾ An important aspect in improving the system is the adoption and use of electronic health records within the public health infrastructure. Electronic health record systems must be capable of automatically collecting, formatting, and sending the data needed by public health entities using a single set of standards for the data and transport that are agreed upon and implemented by all public health entities.

Another important development is the growing availability of HIEs, which offer the promise of significantly easing the costs and burdens of data collection for small practices. Through an HIE, a practice could provide data once and have them delivered in multiple reports for various purposes, including public health reporting, quality reporting, and maintenance of certification. It is important that public health entities leverage the power of HIEs to provide required data while leaving practices appropriately out of the technical and operational workflow loop. As practices undertake the costs and effort to connect to HIEs to improve patient care, their efforts should be rewarded through the automated reuse of their data and the automated return of aggregated reporting by public health entities.

In addition, reporting capabilities should be built upon the basic functionalities required for Meaningful Use reporting, to ease adoption and interoperability within the system. The College also believes that capabilities for conducting analytics, trending, and detection, for example, should be available to individual practices as part of participation in this process. The College is concerned that data collected for the purpose of meeting public health reporting requirements are not made available for other unrelated purposes, such as practice performance comparisons. If doctors are concerned about potential reuse of their data, they will be less likely to participate.

Furthermore, fully automated reporting cannot work if there is nothing for the practices to connect to. Public health entities must have the funding and technical support required to implement standardized automated reporting.

Public health informatics differs from clinical informatics in fundamental ways.(108)

- The focus is on the health of populations in communities as opposed to the health of individuals.
- More attention is paid to the environmental factors that put populations at risk of disease and injury.
- Attention is paid to the entire causal chain leading to disease or injury as opposed to the clinical encounter.
- The work involves obtaining and managing data in varied forms from multiple disparate sources.
- The need to determine if data from different sources concerns the same individuals presents particular privacy and security concerns that must be addressed.

The public health infrastructure presents particular challenges when it comes to implementing information technology solutions.

- Much public health data, especially at the local health departmental level, are still collected and managed by manual processes and often still stored on paper.
- Even where public health data exist in digital form, they are highly siloed into disease- and location-specific datasets that cannot be easily integrated.
- Comprehensive community surveillance will require system-wide agreement on data sources, data definitions, communication standards, and data sharing policies.
- Agreement on standards is complicated by the diverse requirements of different data users.
- Public health requirements typically were not considered during the development of many existing standards and coding systems.
- If clinical systems are to become a reliable source of public health data, a great deal of work will be required to streamline, simplify, automate, and standardize the data collection process.
- Because public health programs often require individually identifiable health information, public health reporting poses elevated risks of improper disclosure.

Achieving a functional public health informatics infrastructure will require fundamental changes in how public health entities function.(108, 109, 110)

- Public health leaders and those who make decisions regarding the allocation of resources to public health must develop a sophisticated understanding of the relevant informatics principles that will drive future progress in the health of our society.
- Successful development of interorganizational public health systems will require clear and continuous focus on multistakeholder consensus-building and coordination—skills that are not routinely found in public health agencies.
- New information technologies, coupled with advances in data analysis, allow us to change the questions that public health can ask and what

we can do in a timely way with the data. Public health professionals of all types and at all levels will need significant and ongoing education in informatics principles, information technology implementation, and data management. Agencies will require sufficient resources to allow such participation by appropriate staff.

- Public health professionals must be made available in significant numbers to participate in the development of relevant informatics standards, data definitions, infrastructure design, and implementation initiatives. Agencies will require sufficient resources to allow such participation by appropriate staff.
- Beyond the need to educate public health professionals in the fundamentals of public health informatics, there will be a need for professionally trained informaticists at all levels of public health activity, from local city and county agencies through national public health activities.

Conclusion

ACP recognizes that federal, state, and local governments are facing very severe funding constraints and supports the need to reduce funding for unnecessary, duplicative, ineffective, or lower priority programs. The College has provided Congress with specific recommendations to reduce the federal budget deficit by hundreds of billions of dollars by reforming entitlement programs, including Medicare and Medicaid, redesigning health benefits, reforming payments and delivery systems, promoting high-value, cost-conscious care, and changing the tax treatment of health benefits.⁽¹¹¹⁾ The College also recognizes that some discretionary spending programs, even those that offer some substantial benefit to the public, may not be affordable at the current time.

Yet strengthening the public health infrastructure is imperative to ensure that the appropriate health care services are available to meet the population's health care needs and to respond to public health emergencies must remain an urgent priority for funding. A strong public health infrastructure provides the capacity to prepare for and respond to both acute and chronic threats to the nation's health. This paper sets forth the policy positions of the American College of Physicians concerning strengthening the public health care infrastructure. The paper highlights the public health system and calls for adequate funding to public health agencies, health centers, and health departments. It also calls for an investment in the public health infrastructure through supporting the public health workforce and improving data and information systems.

It is hoped that this paper will help influence the public health funding discussion and lead to adequate funding and resource allocation to improve the country's public health system in order to protect its citizens.

Glossary

ACA	Affordable Care Act (P.L. 111-148) Health reform legislation (H.R. 3590) signed law into on 3/23/10, also known as the Patient Protection and Affordable Care Act (PPACA). The legislation was further modified March 30, 2010, when the President signed into law H.R. 4872, on the Health Care and Education Reconciliation Act of 2010, the “Reconciliation Act,” (P.L. 111-152)
ACIP	Advisory Committee on Immunization Practices
ACP	American College of Physicians
AHRQ	Agency for Healthcare Research and Quality
APHA	American Public Health Association
ARRA	American Recovery and Reinvestment Act of 2009
ASA	American Society of Anesthesiologists
ASCO	American Society of Clinical Oncology
ASHP	American Society of Health-System Pharmacists
ASHSP	American Society of Health-System Pharmacists
ASTHO	Association of State and Territorial Health Officials
CDC	Centers for Disease Control and Prevention
CTG	Community Transformation Grants
DNPAO	CDC’s Division of Nutrition, Physical Activity and Obesity
DOD	Department of Defense
DOT	Department of Transportation
EPA	Environmental Protection Agency
FDA	Food and Drug Administration
FEMA	Federal Emergency and Management Agency
FoodNet	Foodborne Disease Active Surveillance Network
FSMA	Food Safety Modernization Act
HHS	Department of Health and Human Services
HIT	Health Information Technology

HPSA	Health Professional Shortage Areas
HRSA	Health Resources and Services Administration
IHS	Indian Health Service
ISMP	Institute for Safe Medication Practices
NACCHO	National Association of County and City Health Officials
NHSC	National Health Service Corps
NIH	National Institutes of Health
NP	Nurse Practitioners
NSDUH	National Survey on Drug Use and Health
NTCB	National Tobacco Control Program
ONC	Office of the National Coordinator for Health Information Technology
PHN	Public Health Nurses
PHSC	Public Health Service Commissioned Corps
SAMHSA	Substance Abuse and Mental Health Services Administration
USDA	U.S. Department of Agriculture
USGS	US Geological Survey
VA	Department of Veterans Affairs

References

1. Morrissey T. The Affordable Care Act's Public Health Workforce Provisions: Opportunities and Challenges. *American Public Health Association*. June 2011. Accessed at http://www.apha.org/NR/rdonlyres/461D56BE-4A46-4C9F-9BA4-9535FE370DB7/0/APHAWorkforce2011_updated.pdf
2. HealthyPeople.gov. Accessed at <http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=35>
3. State of the Nation's Health Care 2012 Report. American College of Physicians. Accessed at http://www.acponline.org/advocacy/events/state_of_healthcare/
4. ACP's High Value, Cost-Conscious Care Initiative. American College of Physicians. Accessed at http://www.acponline.org/clinical_information/resources/hvccc.htm
5. What is Public Health? *American Public Health Association*. Accessed at http://www.apha.org/NR/rdonlyres/C57478B8-8682-4347-8DDF-A1E24E82B919/0/what_is_PH_May1_Final.pdf
6. Shortell S, Swartzberg J. The Physician as Public Health Professional in the 21st Century. *Journal of the American Medical Association* 2008;300(24):2916-2918. Accessed at <http://jama.amaassn.org/content/300/24/2916.full.pdf+html>
7. Mays G, Smith S. Evidence Links Increase in Public Health Spending to Declines in Preventable Deaths. *Health Aff July 2011 10.1377/blthaff.2011.0196*. Accessed at <http://content.healthaffairs.org/content/early/2011/07/19/hlthaff.2011.0196.full>
8. National Prevention, Health Promotion, and Public Health Council. Accessed at <http://www.healthcare.gov/prevention/nphpphc>
9. NIH Organization. Accessed at <http://www.nih.gov/about/organization.htm>
10. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/about/organization/cio.htm>
11. Winnable Battles. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/winnablebattles/FocusAreas.html>
12. Advisory Recommendations on Immunization Practices. Accessed at <http://www.cdc.gov/vaccines/recs/acip/default.htm>
13. Food and Drug Administration. Accessed at <http://www.fda.gov/AboutFDA/WhatWeDo/default.htm>
14. Food Safety: Protecting Our Nation's Food Supply. *American Public Health Association*. Accessed at <http://www.apha.org/NR/rdonlyres/469A7A5D-9783-4D1F-A0EB62163EE9AB46/0/FoodSafetyFactsheetweb.pdf>
15. Taylor T, Crowley R. Improving FDA Regulation of Prescription Drugs. *American College of Physicians Policy Monograph 2009*. Accessed at http://www.acponline.org/advocacy/where_we_stand/policy/fda.pdf
16. Mission Statement. United States Department of Agriculture. Accessed at http://www.usda.gov/wps/portal/usda/usdahome?navid=MISSION_STATEMENT

17. About HRSA. Health Resources and Services Administration. Accessed at <http://www.hrsa.gov/about/index.html>
18. The Friends of HRSA Requests \$7.65 Billion for HRSA for Fiscal Year 2012. Accessed at http://www.friendsofhrsa.org/pdf/FriendsHRSA_FY2012Final_onepager.pdf
19. AHRQ at a Glance. Accessed at <http://www.ahrq.gov/about/ataglance.htm>
20. AHRQ Leading Through Innovation & Collaboration. Accessed at <http://ahrq.capconcorp.com/ahrq/mahrqet.asp>
21. Regulatory Topics. United States Environmental Protection Agency. Accessed at <http://www.epa.gov/lawsregs/topics/>
22. SAMHSA's Eight Strategic Initiatives. Substance Abuse and Mental Health Services Administration. Accessed at <http://www.samhsa.gov/about/strategy.aspx>
23. Training Physicians for Public Health Careers. Institute of Medicine, Committee on Training Physicians for Public Health Careers. ISBN: 0-309-10761-X, 136 pages, 6 x 9, (2007). Available for download at the National Academies Press at <http://www.nap.edu/catalog/11915.html>
24. Tilson H, Berkowitz B. The Public Health Enterprise: Examining Our Twenty-First-Century Policy Challenges. *Health Affairs*, 25, no.4 (2006):900-910. Accessed at <http://content.healthaffairs.org/content/25/4/900.full.pdf+html?sid=55707110-627f-45d0-ba43-eb9b75c3ea3>
25. Ready or Not? Protecting The Public's Health From Diseases, Disasters, And Bioterrorism, 2011, The Trust for America's Health. Accessed at www.healthyamericans.org/assets/files/TFAH2011ReadyorNot_09.pdf
26. Estimated Impact of Automatic Budget Enforcement Procedures Specified in the Budget Control Act. Congressional Budget Office, September 12, 2011. Accessed at <http://www.cbo.gov/ftpdocs/124xx/doc12414/09-12-BudgetControlAct.pdf>
27. Investing in America's Health: A State-by-State look at Public Health Funding and Key Health Facts. Trust for America's Health. Accessed at <http://healthyamericans.org/assets/files/Investing%20in%20America%27s%20Health.pdf>
28. Securing the Long-Term Sustainability of State and Local Health Departments Policy Statement. *American Public Health Association*. Accessed at <http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1404>
29. Hoffman C, Sered S. *Threadbare: Holes in America's Health Care Safety Net*. The Kaiser Commission on Medicaid and the Uninsured. November 2005. Accessed at www.kff.org/uninsured/upload/Threadbare-Holes-in-America-s-Health-Care-Safety-Net-report.pdf
30. Emergency Preparedness: Safety Net Hospitals Ready Whenever Disaster Strikes. Magazine of National Association of Public Hospitals and Health Systems, Summer 2007, Volume 21, Number 2. Accessed at <http://www.naph.org/Main-Menu-Category/Publications/Emergency-Preparedness/EP-TSN.aspx?FT=.pdf>

31. Abramson S. Holes in the Net: Surveying the Impact of the Current Economic Recession on the Health Care Safety Net. American Public Health Association: Issue Brief April 2009. Accessed at <http://www.apha.org/NR/rdonlyres/DC0A82C1-606B-4F67-B3DD-3E14A9FB3C9B/0/1SafetyNet.pdf>
32. Taylor T. The Role of Community-Based Public Health Programs in Ensuring Access to Care Under Universal Coverage. American Public Health Association: Issue Brief October 2009. <http://www.apha.org/NR/rdonlyres/48621EFE-9732-4744-83A2-1389763D65D8/0/CommunityBasedReformupdttd.pdf>
33. State Policy Report #33: Entering the Era of Reform: The Future of State Funding for Health Centers. National Association of Community Health Centers, October 2010. Accessed at <http://www.nachc.com/client/State%20Funding%20Report-%20Final.pdf>
34. American College of Physicians. Racial and Ethnic Disparities in Health Care, Updated 2010. Philadelphia: American College of Physicians; 2010: Policy Paper. Accessed at http://www.acponline.org/advocacy/where_we_stand/access/racial_disparities.pdf
35. Health Care Reform: Critical to Closing the Gap for Communities of Color. Fact Sheet from Families USA's Minority Health Initiatives, March 2009. Accessed at <http://www.familiesusa.org/assets/pdfs/health-reform/closing-the-gap.pdf>
36. Youdelman M. The Medical Tongue: U.S. Laws and Policies on Language Access. *Health Affairs*. 2008; 27:424-433. Accessed at <http://content.healthaffairs.org/content/27/2/424.full>
37. Freedman D. Obesity – United States 1988-2008. CDC Health Disparities and Inequalities Report – United States, 2011. CDC Morbidity and Mortality Weekly Report. Accessed at <http://www.cdc.gov/mmwr/pdf/other/su6001.pdf>
38. US National Obesity Trends. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/obesity/data/trends.html>
39. Finkelstein E, Trogdon J, Cohen J, Dietz W. Annual Medical Spending Attributable to Obesity: Payer-And-Service-Specific Estimates. *Health Aff September/October 2009 vol. 28 no. 5 w822-w831*. Accessed at <http://content.healthaffairs.org/content/28/5/w822.full>
40. State-Based Programs. Center for Disease Control & Prevention. Accessed at <http://www.cdc.gov/obesity/stateprograms/>
41. Community Transformation Grants. Center for Disease Control and Prevention. Accessed at <http://www.cdc.gov/communitytransformation/>
42. Montana Cardiovascular Disease and Diabetes Prevention Program. Accessed at <http://www.mtprevention.org/about-us.html>
43. Harwell T (07/2011). "Factors associated with achieving a weight loss goal among participants in an adapted Diabetes Prevention Program". *Primary care diabetes* (1751-9918), 5 (2), 125. Accessed at <http://www.ncbi.nlm.nih.gov/proxygw.wrlc.org/pubmed/21233033>

44. Examples of Successful Community-Based Public Health Interventions (State-by-State) Trust for America's Health. Accessed at <http://healthyamericans.org/assets/files/Examplesbystate1009.pdf>
45. Basics about Childhood Obesity. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/obesity/childhood/basics.html>
46. Let's Move! The Facts. Accessed at http://www.letsmove.gov/sites/letsmove.gov/files/Let%27s_Move_Fact_Sheet.pdf
47. Strategies and Solutions – Overweight and Obesity. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/obesity/childhood/solutions.html>
48. Learn the Facts. Let's Move! Accessed at <http://www.letsmove.gov/learn-facts/epidemic-childhood-obesity>
49. Adult Cigarette Smoking in the United States: Current Estimates. Centers for Disease Control and Prevention. Accessed at http://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm
50. Garret B. Cigarette Smoking – United States, 1965-2008. CDC Health Disparities and Inequalities Report – United States, 2011. CDC Morbidity and Mortality Weekly Report. Accessed at <http://www.cdc.gov/mmwr/pdf/other/su6001.pdf>
51. Preventing tobacco use among youth and young adults: a report of the Surgeon General – Atlanta, GA.: Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Washington, DC. 2012. Accessed at <http://www.surgeongeneral.gov/library/preventing-youth-tobacco-use/full-report.pdf>.
52. The Health Consequences of Smoking: A Report of the Surgeon General. U.S. Department of Health and Human Services. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004. Accessed at http://www.cdc.gov/tobacco/data_statistics/sgr/2004/index.htm
53. Health Effects of Cigarette Smoking. Centers for Disease Control and Prevention. Accessed at http://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/effects_cig_smoking/index.htm
54. Smoking-Attributable Mortality, Years of Potential Life Lost, and Productivity Losses—United States, 2000–2004. Morbidity and Mortality Weekly Report 2008;57(45):1226–8. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5745a3.htm>
55. Smokeless Tobacco Facts. Centers for Disease Control and Prevention. Accessed at http://www.cdc.gov/tobacco/data_statistics/fact_sheets/smokeless/smokeless_facts/index.htm

56. National Tobacco Control Program. Centers for Disease Control and Prevention. Accessed at http://www.cdc.gov/tobacco/tobacco_control_programs/ntcp/index.htm
57. American College of Physicians. Tobacco Control and Prevention. Philadelphia: American College of Physicians; 2010: Policy Monograph. Accessed at http://www.acponline.org/pressroom/control_tobacco.pdf
58. Climate and Health Program: CDC Policy. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/climatechange/policy.htm>
59. Ebi K. Climate Change and Health Risks: Assessing and Responding to Them Through “Adaptive Management” *Health Aff May 2011 vol. 30 no. 5 924-930*. Accessed at <http://content.healthaffairs.org/content/30/5/924.full?sid=b887e89b-ff69-4cde-a3a0-b98264a27be5>
60. Doctors Demand action from politicians on climate change. Centre for Sustainable Healthcare. Accessed at <http://sustainablehealthcare.org.uk/news/2009/09/doctors-demand-action-politicians-climate-change>
61. Air Pollution. National Geographic. Accessed at <http://environment.nationalgeographic.com/environment/global-warming/pollution-overview/>
62. Water Pollution Diseases. Environmental PollutionCenters. Accessed at <http://www.environmentalpollutioncenters.org/water/diseases/>
63. Kuehn B. Traces of Drugs Found in Drinking Water. *JAMA*. 2008;299(17):2011-2013. doi: 10.1001/jama.299.17.2011. Accessed <http://jama.ama-assn.org/content/299/17/2011.full>
64. Soil Poisoning Pollution Facts. Environmental PollutionCenters. Accessed at <http://www.environmentalpollutioncenters.org/soil/facts/>
65. ACP Policy Compendium Fall 2011
66. Estimates of Foodborne Illness in the United States. Centers for Disease Control and Prevention. Accessed at http://www.cdc.gov/ncidod/dbmd/diseaseinfo/foodborneinfections_g.htm
67. FoodNet – Foodborne Disease Active Surveillance Network. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/foodnet/>
68. NIDA InfoFacts: Treatment Approach for Drug Addiction. National Institute on Drug Abuse. Accessed at <http://www.nida.nih.gov/infofacts/treatmeth.html>
69. Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings. US Department of Health and Human Services. Accessed at <http://www.samhsa.gov/data/NSDUH/2k10NSDUH/2k10Results.htm>
70. James D, Glaze L. Mental Health Problems of Prison and Jail Inmates. Bureau of Justice Statistics. September 2006. Accessed at <http://bjs.ojp.usdoj.gov/content/pub/pdf/mhppji.pdf>

71. Torrey E, Kennard A, Eslinger E, Lamb R, and Pavle J. More Mentally Ill Persons are in Jails and Prisons Than Hospitals: A Survey of the States. Treatment Advocacy Center and National Sheriffs' Association. Accessed at http://treatmentadvocacycenter.org/storage/documents/final_jails_v_hospitals_study.pdf
72. Fellner J. A Corrections Quandary: Mental Illness and Prison Rules. Harvard Civil Rights-Civil Liberties Law Review. Vol 41 – 2006. Accessed at http://www.law.harvard.edu/students/orgs/crcl/vol41_2/fellner.pdf
73. Kane- Mallik K, Visher C. How Physical, Mental, and Substance Abuse Conditions Shape the Process of Reintegration. Urban Institute. February 15, 2008. Accessed at <http://www.urban.org/publications/411617.html>
74. American College of Physicians – American Society of Internal Medicine. Correctional Medicine, 2001: Public Policy Paper.
75. Violence-Related Firearm Deaths Among Residents of Metropolitan Areas and Cities – United States, 2006-2007. MMWR Center for Disease Control and Prevention. *JAMA*. 2011;306(5):482-484. Accessed at <http://jama.ama-assn.org/content/306/5/482.full>
76. Curfman G, Morrissey S, Drazen J. Handgun Violence, Public Health, and the Law. *N Engl J Med* 2008; 358:1503-1504. April 3, 2008. Accessed at <http://www.nejm.org/doi/full/10.1056/NEJMe0802118>
77. NRA Gun Safety Rules. The National Rifle Association Headquarters. Accessed at <http://www.nrahq.org/education/guide.asp>
78. Confronting the Public Health Workforce Crisis. ASPH Policy Brief. Association of Schools of Public health. Accessed at <http://www.asph.org/UserFiles/WorkforceShortage2008Final.pdf>
79. American College of Physicians. Creating a New National Workforce for Internal Medicine. Philadelphia: American College of Physicians; 2006: Position Paper. Accessed at http://www.acponline.org/advocacy/where_we_stand/policy/im_workforce.pdf
80. What is Commissioned Corps? American's Public Health Responders: U.S. Public Health Service Commissioned Corps. Accessed at <http://www.usphs.gov/aboutus/questions.aspx#whatis>
81. Bekemeier B, Kelly G, Matthews J. The Public Health Nursing Shortage: A Threat to the Public's Health. American Public Health Association. Accessed at http://www.apha.org/membersgroups/newsletters/sectionnewsletters/public_nur/winter07/nursingshortage.htm
82. American College of Physicians. Nurse Practitioners in Primary Care. Philadelphia: American College of Physicians; 2009: Policy Monograph. Accessed at http://www.acponline.org/advocacy/where_we_stand/policy/np_pc.pdf
83. Gebbie K, Merrill J, Tilson H. The Public Health Workforce. *Health Affairs*, 21, no.6 (2002):57-67. Accessed at <http://content.healthaffairs.org/content/21/6/57.full.pdf+html>

84. Get the Facts - Public Health Laboratory Capacity. American Public Health Association. Accessed at <http://www.apha.org/NR/rdonlyres/16093859-CFE2-421E-B2C9-102CBB02CAEF/0/PHLabcapacityrevised09.pdf>
85. Get the Facts about Health IT Workforce Development Program. The Office of the National Coordinator for Health Information Technology. Accessed at http://healthit.hhs.gov/portal/server.pt/community/health_it_workforce_development_program:_facts_at_a_glance/1432/home/17051
86. American College of Physicians. How Is a Shortage of Primary Care Physicians Affecting the Quality and Cost of Medical Care?. Philadelphia: American College of Physicians; 2008: White Paper. Accessed at http://www.acponline.org/advocacy/where_we_stand/policy/primary_shortage.pdf
87. Starfield B, Shi L, Macinko, J. 2005. Contribution of primary care to health systems and health. *Milbank Quarterly*, 83:457-502.
88. American College of Physicians. Controlling Health Care Costs While Promoting The Best Possible Health Outcomes. Philadelphia: American College of Physicians; 2009: Policy Monograph. Accessed at http://www.acponline.org/advocacy/where_we_stand/policy/controlling_healthcare_costs.pdf
89. Navigating Drug Shortages in American Healthcare: A Premier healthcare alliance analysis. March 2011. Accessed at <http://www.premierinc.com/about/news/11-mar/drug-shortage-white-paper-3-28-11.pdf>
90. Drug Shortages. US Food and Drug Administration. Accessed at <http://www.fda.gov/drugs/drugsafety/drugshortages/default.htm>
91. Drug Shortage Resource Center. American Society of Health-System Pharmacists. Accessed at <http://www.ashp.org/shortage>
92. US Drug Shortages (Presentation). US Food and Drug Administration. Accessed at <http://www.fda.gov/downloads/AboutFDA/Transparency/Basics/UCM273360.pdf>
93. Drug Shortage Summit Summary Report. November 5, 2010. Accessed at <http://www.ashp.org/drugshortages/summitreport>
94. Cherici C, McGinnis P, Russell W. Buyer Beware: Drug shortages and the grey market. Premier healthcare alliance. Accessed at <http://www.premierinc.com/about/news/11-aug/Gray-Market/Gray-Market-Analysis-08152011.pdf>
95. Current Vaccine Shortages & Delays. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/vaccines/vac-gen/shortages/>
96. Vaccine Shortages. FamilyDoctor.org. Accessed at <http://familydoctor.org/online/famdocen/home/healthy/vaccines/731.html>
97. American College of Physicians. The Health Care Response to Pandemic Influenza. Philadelphia: American College of Physicians; 2006: Position Paper. Accessed at http://www.acponline.org/advocacy/where_we_stand/policy/pandemic_flu.pdf

98. Offit, P. At Risk: Vaccines. The Boston Globe, June 3, 2007. Accessed at http://www.boston.com/news/globe/ideas/articles/2007/06/03/at_risk_vaccines/
99. Retracted Autism Study an ‘elaborate fraud,’ British Journal finds. CNN. January 5, 2011. Accessed at <http://www.cnn.com/2011/HEALTH/01/05/autism.vaccines/index.html>
100. Harris, G. Vaccine Cleared Again as Autism Culprit. The New York Times. August 25, 2011. Accessed at <http://www.nytimes.com/2011/08/26/health/26vaccine.html>
101. Outbreaks: Pertussis (Whooping Cough). Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/pertussis/outbreaks.html>
102. Fast Facts. Get Smart: Know when Antibiotics Work. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/getsmart/antibiotic-use/fast-facts.html>
103. ACP-ASIM Executive Speaks on Antibiotic Resistance at National Health Panel. American College of Physicians. Accessed at <http://www.acponline.org/pressroom/abws2.htm>
104. Preventing Anti-biotic Resistance – We All Have a Role to Play. Centers for Disease Control and Prevention. Accessed at <http://www.cdc.gov/Features/AntibioticResistance/>
105. American College of Physicians. Resolution 15-F10: **Opposing the Use of Antimicrobials for Agricultural Purposes**. Adopted by Board of Regents, April 4, 2011.
106. Research and Development in the Pharmaceutical Industry. October 2006. Congressional Budget Office Accessed at <http://www.cbo.gov/ftpdocs/76xx/doc7615/10-02-DrugR-D.pdf>
107. Buntin M, Jain S, Blumenthal D. Health Information Technology: Laying The Infrastructure for National Health Reform. *Health Aff* June 2010 vol. 29 no. 6 1214-1219. Accessed at <http://content.healthaffairs.org/content/29/6/1214.full.html>
108. Yasnoff W. Public Health Informatics: Improving and Transforming Public Health in the Information Age. *J Public Health Management Practice*, 2000, 6(6), 67–75
109. Public Health Informatics Workforce. Statement of Policy. National Association of County and City Health Officials. Accessed at <http://www.naccho.org/advocacy/positions/upload/MicrosoftWord-07-06PUBLICHEALTHINFORMATICSWORKFORCE.pdf>.
110. Electronic Health Records, Health Information Exchange, and Interoperability for Local Health Departments. Statement of Policy. National Association of County and City Health Officials. Accessed at <http://www.naccho.org/advocacy/positions/upload/07-05-HIEs-and-interoperability.pdf>
111. Letter to joint select committee on deficit reduction. September 12, 2011. American College of Physicians. Accessed at http://www.acponline.org/advocacy/where_we_stand/medicare/super_comm9-12-2011.pdf



Product #510121000