

Our Nation's Health Depends on Continued Advocacy

History shows that medical innovations and advances in public health have increased the life expectancy of our population by reducing early mortality resulting from infectious diseases such as tuberculosis and diarrhea. This advancement, in conjunction with illness associated with aging, has led to an increase in chronic diseases and morbidities such as diabetes, heart disease and stroke, cancer, and dementia. Unfortunately, our nation's healthcare system simply does not meet the necessary standards to combat these trends. Data from Commonwealth Fund International Health Policy Surveys in 2014, 2015, and 2016, ranks the U.S. health care system as last among 11 developed countries.¹ Because of the physical and economic burdens, and the research showing the effectiveness of prevention, it is critical that we encourage policy makers to help improve the healthcare system by investing in public health programs.

November 2018

Why Preventing Chronic Disease is Essential - Prevention Works

In the public health community, we share a desire for a society in which individuals are healthy enough to thrive and contribute. However, rising healthcare costs, decreasing care quality, limited access (28 million Americans are uninsured or have restricted access to healthcare services²), and a growing population of unhealthy citizens continuously threaten this vision. Unfortunately, although the causes and manifestations of chronic disease have been identified and studied, we face the ongoing challenge of translating this knowledge in actions at the community level.

Public health programs work to improve care, prevent disease, and prevent complications of disease. An investment in chronic disease prevention and control programs saves lives, supports a vibrant economy through a healthy workforce, improves quality of life, and saves healthcare dollars.

Adequate financial resources have not been dedicated to implementing the evidence-based public health prevention practices that we know work and can make a difference.

An investment of adding \$500 million per year for four years (rising to a total additional investment of \$2 billion annually) would allow the governmental public health and partner organizations to have a presence in every state, and many high-risk communities, to make significant health improvements in the lives of millions of Americans.

In this brief paper, we will outline the detrimental impacts of chronic disease in the United States, highlight the relevant physical and economic burdens of specific conditions, and present options for prevention at the individual and governmental levels.

Investing in the Future

An NACDD White Paper

Cost, access, and quality are the key issues addressed when discussing healthcare in America. However, these key issues are flawed. They solely focus on medical treatment and payment, which limits the potential for public health interventions to support good health maintenance, including the prevention of disease, and disease complications. Let's look at these issues in context. The total national health expenditures in 2015 were \$3.2 trillion, with the per capita national health expenditures reaching \$9,990.³ America's health expenditures are expected to increase at an average rate of 5.6% per year through the year 2025 if current policies and conditions persist.⁴

- Chronic diseases accounted for seven of the top 10 causes of death in 2014⁵.
- 46% of all deaths in 2014 were caused by two chronic diseases—heart disease and cancer⁵.
- Those who die of chronic disease before age 65 lose one-third years of potential life⁶.

Chronic disease negatively impacts population health beyond just death, alone. The diseases tend to be long lasting and are treatable; however, not curable. Disability and reduced quality of life are complications that likely are experienced by patients due to chronic disease. The burden of chronic disease is directly shared by Americans of all ages, and the associated economic impact is felt by taxpayers and employers, alike.

- More than 117 million people in the United States—about half of all adults—have at least one chronic health condition⁵.
- One in four U.S. adults have two or more chronic health conditions⁵.
- Diabetes is the number one cause of kidney failure, lower-limb amputations, and new cases of blindness among adults, which can hinder daily tasks for the individual⁵.
- More than one third of U.S. adults have at least one type of cardiovascular disease, some of which can be prevented through lifestyle interventions⁵.

In terms of reducing risk for chronic disease:

- At least 50% of U.S. adults do not meet recommended aerobic physical activity guidelines⁵.
- According to CDC - About one in seven U.S. adults still smoke cigarettes, and about 3.9 million middle and high school students use at least one tobacco product, including e-cigarettes.
- About 25% of U.S. nonsmokers are exposed to secondhand smoke where they live, work, or play.

Most families are negatively impacted by chronic disease by some means: whether it be the personal diagnosis of a disease, grieving the death of a loved one, family members with long-term illness, disability, or reduced quality of life, or the financial and community burdens evoked by these diseases.

Investing in the Future

An NACDD White Paper

Our nation's health must not be measured by the length of life, but by the **quality of life** of all Americans. Chronic diseases account for 86% of healthcare costs in the U.S. Therefore, the pressing issue of chronic disease and the preventive health measures in the country ought to be acknowledged and addressed.

The state of the nation's healthcare system emphasizes expensive advancements in the hopes of curing disease, however cost-effective preventive measures to avert such diseases should be a greater focus. Traditional physician-patient visits are the typical point of care in our society. Although effective to address acute issues, the visits tend to be infrequent and hurried. However, individuals spend considerably more time in their communities, whether it be at school, work, or play, where they are engaging in health risk or health promoting behaviors. Much of the time, the individual makes such decisions with minimal training, information, and health literacy. This is particularly true of the 28 million Americans who are uninsured and have limited access to healthcare services.⁷

Reality Check

- More than 86% of the nation's healthcare costs relate to chronic diseases, and most of such costs are preventable⁵.
- Our nation's healthcare system is ranked 24th based on progress in meeting the United Nation's Sustainable Development Goals⁸.
- The projected prevalence of any cardiovascular disease in the United States will increase by 3% to over 45% by the year 2035⁹.
- 27% of young adults are too overweight to serve in the military¹⁰.
- We are responsible for causing most of the greatest health problems for ourselves.
- Then realize the utmost necessity for public health policy and prevention.

A Healthier Future

Making healthy choices and refraining from known risky behaviors is a challenge at every stage of life in the culture that we live in today. Adults and adolescents, alike, know that it is important to eat healthy, engage in physical activity, and avoid tobacco. However, schools are cutting back on recess and physical education, tobacco often is readily available, and nutritious food choices even when available, often are costly. This showcases the problem of disparities among people – making healthy choices difficult and hindering access to healthy food and lifestyle options.

Investing in the Future

An NACDD White Paper

Although the available treatments are somewhat effective in treating many chronic diseases, time, money, and expertise would be better spent addressing active interventions to prevent or mitigate the effects of the diseases in the first place. This addition to the traditional healthcare methods would not only improve the lives of Americans, but also will reduce the trajectory of long-term healthcare costs.

The Centers for Disease Control and Prevention (CDC) and associated state and community-based programs are responsible for developing and implementing a wide range of prevention strategies (<http://www.publichealthsuccess.org>). This current array of evidence-based and cost-effective programs are a result of historically limited funding supporting state and local chronic disease control and prevention initiatives. State successes, referenced on the aforementioned website, spotlight achievements regarding many of the funded activities throughout the nation.

Initiatives across the country have been successful in their endeavor to minimize chronic disease. For example:

- In 2017, the State of South Carolina took on the issue of hypertension, which can lead to heart disease, stroke, and kidney disease. After intervention the hypertension control rate jumped from 61% to 88% in just six months. In 16 practice sites across four counties, the average control rate increased from 65% to 75% in six months for patients seen at least twice.
- In 2018, the State of Missouri had a growing diabetes rate largely due to lack of insurance coverage, education, and access to health providers. After intervention, one public and two private insurance carriers in the state announced they would be covering the Diabetes Prevention Program – a proven strategy to reduce risk of Type 2 Diabetes. More than 1.7 million beneficiaries were covered by the end of the study cycle.

Although these success stories are praiseworthy, they only scratch the surface of our chronic disease epidemic. Chronic disease prevention strategies are not one-size-fits-all, and therefore, tailored interventions for diverse populations are imperative to reap the associated benefits—a healthy workforce and population, elimination of disparities, and decreased healthcare costs.

Healthy Children

Addressing the childhood obesity epidemic is crucial to changing the cost curve of chronic disease. Healthy children are more likely to remain healthy. Children who are overweight or obese tend to experience chronic disease like type 2 diabetes, asthma, and heart disease as well as develop bone and joint problems leading to arthritis. Exposure to a risk factor such as tobacco use, poor nutrition, lack of exercise, or excessive alcohol use contribute to the majority of chronic diseases. 13 million children in the US are diagnosed as obese.¹¹ Choosing better food options and exercising more can help combat this, and the outcomes are multi-beneficial. The research is clear—children who are active for at least 60 minutes a day, or play a sport are more likely to receive better grades

Investing in the Future

An NACDD White Paper

in school.¹² As the adult population's health declines, the youth population follows a similar pattern. But, it is not just type 2 diabetes and obesity that our children are struggling with. Nicotine addiction from both traditional cigarettes as well as the use of e-cigarettes, opioid addiction being passed on to them in utero, and insufficient sleep are all burdens being carried by our children.^{13,14,15,16} Ensuring children are physically fit, well fed, and educated is critical for their future and the health of our greater society.

Military Readiness

The lack of physically able military recruits leaves our nation vulnerable to crisis both foreign and domestic. Nationwide, 71% of young people between the ages 17 and 24 do not qualify for military service, and obesity disqualifies 31% of youth from serving, if they so choose. These ineligibility rates are a major reason why the Army was not on track to meet its annual recruitment goals as of September 2018.

Once in the military, members are at a higher risk for poor lifestyle choices that could lead to chronic conditions and reduce deploy-ability. Members who are deployed are at increased risk to smoke, which leads to conditions such as lung cancer, chronic bronchitis, heart disease, and COPD.¹⁷ The Department of Defense spends \$1.5 B annually on obesity related healthcare costs. This includes costs for current and former service members and families, as well as the cost of replacement of unfit personnel.²⁵ Keeping our population fit to be physically able to join the military as well as physically fit enough to serve once enlisted is critical to our national defense, emergency response, and national security.

Healthy Competitive Workforce

One of the largest concerns of any employer is how to maximize returns of their product or service. While maximizing returns requires focus on many variables in a business, a common factor for all industries is having workers who are healthy and present at their job. Absenteeism and presenteeism are a tremendous concern to the senior leadership of a company. If employees are not present at their job or show up, but are sick – their work suffers and impacts the bottom line. Chronic conditions that hinder an employee's ability to be at work or to be fully present at work causes loss to business and the economy.⁸ Additionally, most Americans receive their health benefits from their employer; chronic disease and risky lifestyle behaviors are one reason for increasing healthcare costs to employers. Preventive health measure interventions that occur before employees are sick can lower future costs to employers due to productivity as well as negate productivity losses.¹

Healthy Aging

By the year 2033, for the first time in U.S. history, the number of adults 65 and older will outnumber the number of people 18 and younger. Therefore, taking care of an aging population will be a top priority in health, economic, and social spheres. Chronic disease most commonly effects seniors. Although people are projected to live longer lives, this does not mean they are projected to live higher quality lives. In fact, Americans are projected to live in some of the worst health quality conditions. For example, currently, 95% of people diagnosed with dementia have at least one other chronic condition.¹⁸ In the adult population, 84.1 million people, or more than one in three, have prediabetes, of those, nine out of 10 people do not know they even have the disease.¹⁹ About 70% of adults in the US have diagnosed high blood pressure.²⁰ Of those with this condition, half do not have their blood pressure under control. About 5 million adults, age 65 and older on Medicaid Part D are not taking their high blood pressure medications as directed.²⁰

The problems that face the 65+ population do not just happen in a vacuum. Many adults who are 65 and older with comorbid, chronic conditions require some level of care. This usually falls to their friends, family, or industry. There are an estimated 44 million informal caregivers in the US. Caregivers often work other full and part-time jobs experiencing high stress and health challenges of their own. Many experience psychological, physical and financial stress in this role.²¹ Generations United, a group focused on intergenerational collaboration points to where this is especially true, the estimated 2.6 million grandparents raising grandchildren due to an opioid addiction in the family.

Bringing Chronic Disease Prevention Up to Meaningful Scale

Chronic disease prevention and control programs receive minimal governmental healthcare funding. Investment in CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) must increase substantially so that **every** state has the opportunity to provide an array of evidence-based programs necessary to prevent chronic disease in communities across the nation. The following must be included:

- Nutrition and Physical Activity Programs
- Arthritis Prevention and Control
- Diabetes Prevention and Control (including the National Diabetes Prevention Program and prevention of kidney disease)
- Early Detection of Cancer and Cancer Survivorship Services
- Healthy Community Programs (addressing social determinants of health, root causes, and health promotion)
- Heart Disease and Stroke Prevention

Investing in the Future

An NACDD White Paper

- Implementation of The Healthy Brain Initiative: The Public Health Road Map
- School Health and Oral Health Programs
- Tobacco Prevention and Control

Prevention efforts in America receive approximately the same amount of funding as they did in 2001. Whereas housing, education, and medical care investments have routinely surpassed inflation rates, prevention investments have not kept up.

Important Opportunities

It is not too late to invest in prevention methods that will increase the quality of lives of Americans, as well as decrease the trajectory of healthcare spending in the nation. CDC and state health agencies should be at the forefront of this initiative and continue to lead the successful programs that already are in place. CDC's NCCDPHP has demonstrated positive impacts on improving health and decreasing chronic disease across the lifespan, increasing healthy life expectancy, and therefore reducing healthcare costs through the tracking of chronic disease and risk factors, partnering with states and communities, and supporting healthcare delivery of prevention services.²² In addition to the abovementioned state-based, evidence-based programs, and with an increase in funding, CDC has the potential to further accelerate the assembly of additional programs to develop new evidence for changes in healthcare; target diverse populations and disparities; launch further health and community linkages, health and economic development linkages, and Medicaid and Public Health partnerships.

Furthermore, physical activity is a sector that demands immediate attention from CDC, as the current epidemic of sedentary behavior negatively impacts our health, the health of the aging population, our economy, and our national security.

The federal and state partnerships can utilize state projects to increase the database, encompassing best evidence-based practices to further transform the United States into a healthier nation. An investment of adding \$500 million per year for four years (total additional investment \$2 billion annually) would allow the CDC NCCDPHP to have a presence in every state and many (especially high-risk) communities across America sufficient to make a difference. This investment will allow for planned scale-up of proven interventions addressing the key aspects described herein including risks associated with lack of physical activity, poor nutrition and use of tobacco products – in addition to common (usually preventable) chronic diseases, including heart disease/stroke, diabetes, cancer, and common conditions found in aging such as Alzheimer's disease and arthritis.

Examples of Impact

Chronic disease prevention and control programs save lives and money!

Physical Activity

Physical activity can improve health by lowering risks for chronic diseases, controlling and maintaining weight, and therefore increasing the length and quality of life.²³ However, only half of adults and a quarter of children and adolescents engage in the recommended amount of aerobic physical activity.²⁴ Due to the lack of physical activity, lifestyle choices, and other conditions, more than a third of U.S. adults and 17 percent of youth have obesity.²⁵ The obesity epidemic is detrimentally impacting the national security of the nation in that one in four young adults are too heavy to serve in the military. Additionally, between the years 2002 and 2011, obesity among active service duty members rose over 60 percent, thereby preventing them from meeting medical standards to deploy, or likely will be associated with increased risk for injury once deployed.²⁵ Along with the health risks and national security risk related to obesity, the high cost is another issue that must be considered. The annual medical cost of obesity in 2008 U.S. dollars was \$147 billion, and the estimated medical costs were \$1,429 higher for those with obesity than for those at a normal weight.²⁵

Diabetes

If current trends continue, one-third of U.S. adults are expected to be living with diabetes by the year 2050.²⁶ More than a third of U.S. adults currently have prediabetes and are at risk for a diagnosis of type 2 diabetes, as well as other chronic diseases, such as heart disease and stroke, and accompanying body complications.²⁶ Programs like the National Diabetes Prevention Program (DPP) have a mission to lower the risk of such chronic diseases for those with prediabetes by educating and encouraging those patients to engage in healthy lifestyle habits, including increased physical activity and nutritious food intake. Not only will programs like the National DPP decrease chronic disease risk—risk of developing type 2 diabetes can be reduced by 58% for those with prediabetes who participate in lifestyle modification strategies—but it will consequently decrease the associated healthcare expenditures.²⁶ Direct medical costs and lost productivity equate to \$245 billion yearly, and medical costs are doubled for those with diabetes compared to those without the disease.²⁷

Heart Disease and Stroke

One-quarter of deaths in the United States are due to heart disease each year, while one out of every 20 deaths are due to stroke.^{28,29} Heart disease and stroke are estimated to cost the nation \$234 billion annually—\$200 billion for heart disease; \$34 billion for stroke—for medical costs and lost productivity.^{28,29} High blood pressure is a key risk for both heart disease and stroke; however,

Investing in the Future

An NACDD White Paper

only half of people with hypertension have the condition under control.³⁰ About 70-80% of people that have their first heart attack or first stroke also have high blood pressure.³¹ Controlling blood pressure and other risk factors, like uncontrolled cholesterol and current smoking, can decrease a person's risk of suffering a heart attack or stroke by 80%.³² With both professional and patient education, as well as risk identification and reduction, these cardiovascular events are highly preventable or treatable.

Cancer

Public health early detection programs are accountable for the identification of many types of cancers in the early stages. The earlier identification of cancer is correlated with more effective treatments and positive outcomes, as well as decreased expenses. The average costs per-patient for breast cancer, one-year post diagnosis is about \$60,000, and \$130,000 for early stage and stages III/IV, respectively.³³ Additionally, patients with colon cancer identified by colonoscopy rather than through other means, such as presenting with symptoms, have better staging and outcomes, prolonged longevity, improved quality of life, and reduced healthcare costs.³⁴

Alzheimer's Disease

More than 5 million Americans are currently living with Alzheimer's disease, and this number is estimated to triple by 2050 due to the aging population.³⁵ Alzheimer's disease is reported as the sixth leading cause of death among U.S. adults.³⁵ However, it is hypothesized that the disease should be ranked higher, as it is commonly not the diagnosis reported on death certificates. Alzheimer's disease and other dementias cost the nation \$259 billion in 2017, and with the projected increase in prevalence, it is expected that the costs could reach \$1.1 trillion in 2050.³⁶ In addition to the health and costs of the patient, caregiver health is of concern, as 35 percent of caregivers report that their health has declined as a result of their care responsibilities.³⁶ There is a growing body of evidence, including that of *The Healthy Brain Initiative: The Public Health Road Map for State and National Partnerships* that support the required investment of federal resources and public health's role in raising awareness and maintaining quality of life for those both directly and indirectly affected by the disease.

Authors

David Hoffman DPS, CCE, dhoffman@mariacollege.edu

Associate Professor, Ethics and Health Policy, Maria College; Clinical Professor, UAlbany School of Public Health Department of Health Policy Management and Behavior; Adjunct Asst. Professor, Albany Medical College, Alden March Bioethics Institute.

Jillian Murtzluff MPH, Jmurtzlufft@mariacollege.edu

Asst. Director, Healthcare Management Program

National Association of Chronic Disease Directors | 325 Swanton Way, Decatur, Ga. 30030

Investing in the Future

An NACDD White Paper

- ¹ The Commonwealth Fund. Mirror, Mirror 2017: International Comparison Reflects Flaws and Opportunities for Better U.S. Health Care. Accessed October 23, 2018 <https://interactives.commonwealthfund.org/2017/july/mirror-mirror/>
- ² Health insurance coverage in the United States: 2016. United States Census Bureau Web Site. <https://www.census.gov/library/publications/2017/demo/p60-260.html> Updated October 4, 2017. Accessed February 21, 2018.
- ³ Health expenditures. Centers for Disease Control and Prevention Web Site. <http://www.cdc.gov/nchs/fastats/health-expenditures.htm> Updated May 3, 2017. Accessed February 14, 2018.
- ⁴ NHE fact sheet. Centers for Medicare and Medicaid Services Web site. <https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/nhe-fact-sheet.html> Updated December 6, 2017. Accessed February 14, 2018.
- ⁵ Chronic disease overview. Centers for Disease Control and Prevention Web site. <http://www.cdc.gov/chronicdisease/overview/> Updated June 28, 2017. Accessed February 14, 2018.
- ⁶ Chronic disease prevention. Centers for Disease Control and Prevention Web Site. <http://www.cdc.gov/program/performance/fy2000plan/2000vii.htm> Updated June 30, 2011. Accessed March 5, 2018.
- ⁷ Health insurance coverage in the United States: 2016. United States Census Bureau Web Site. <https://www.census.gov/library/publications/2017/demo/p60-260.html> Updated October 4, 2017. Accessed February 21, 2018.
- ⁸ Fullman N, Barber RM, Abajobir AA, et al. Measuring progress and projecting attainment on the basis of past trends of the health-related sustainable development goals in 188 countries: an analysis from the global burden of disease study 2016. *Lancet*. 2017; 390(10100): 1423-1459. doi: [https://doi.org/10.1016/S0140-6736\(17\)32336-X](https://doi.org/10.1016/S0140-6736(17)32336-X)
- ⁹ Khavjou O, Phelps D, Leib A. Projections of cardiovascular disease prevalence and costs: 2015-2035. *RTI International*. 2016.
- ¹⁰ Facts and statistics. U.S. Department of Health & Human Services Web site. <https://www.hhs.gov/fitness/resource-center/facts-and-statistics/index.html> Updated January 26, 2017. Accessed March 5, 2018.
- ¹¹ CDC's Work to Reduce Childhood Obesity By Connecting Families, Clinics, and Communities. Center for Disease Control and Prevention Web Site. <https://www.cdc.gov/nccdphp/dnpao> Updated November 13, 2018. Accessed November 28, 2018.
- ¹² Healthier Students Are Better Learners. Center for Disease Control and Prevention Web Site. https://www.cdc.gov/healthyschools/health_and_academics/index.htm Updated October 19, 2017. Accessed November 28, 2018.
- ¹³ Healthy Kids. Successful Students. Stronger Communities. Center for Disease Control and Prevention Web Site. <https://www.cdc.gov/healthyyouth> Updated August 27, 2018. Accessed November 28, 2018
- ¹⁴ US Opioid Crisis Addressing Maternal and Infant Health. Center for Disease Control and Prevention Web Site. www.cdc.gov/reproductivehealth/opioid-use-disorder-pregnancy/index.html Updated August 9, 2018. Accessed November 28, 2018.
- ¹⁵ Zzzzzz...Sleepy Kids- Most Students Need More Sleep. Center for Disease Control and Prevention Web Site. <https://www.cdc.gov/sleep/infographics/sleepy-kids.html> Updated September 5, 2018. Accessed November 28, 2018.
- ¹⁶ Know The Risks E-Cigarettes & Young People. Center for Disease Control and Prevention Web Site. https://e-cigarettes.surgeongeneral.gov/documents/SGR_ECig_ParentTipSheet_508.pdf Updated September 27, 2018. Accessed November 28, 2018.
- ¹⁷ Tips from Former Smokers- Military Service Members. Center for Disease Control and Prevention Web Site. <https://www.cdc.gov/tobacco/campaign/tips/groups/military.html> Updated October 16, 2018 Accessed November 28, 2018.
- ¹⁸ Making Alzheimer's Our Next Public Health Success Story. Center for Disease Control and Prevention Web Site. <https://www.cdc.gov/aging/pdf/executive-brief-HBI-2018-road-map-508.pdf> Updated October 1, 2018. Accessed November 28, 2018.

Investing in the Future

An NACDD White Paper

- ¹⁹ Prevent Type 2 Diabetes- Talking to Your Patients About Lifestyle Change. Center for Disease Control and Prevention Web Site. <https://www.cdc.gov/diabetes/pdfs/library/socialmedia/HCP-infographic.pdf> Updated April 4, 2017. Accessed November 28, 2018
- ²⁰ Blood Pressure Control Helping Patients Take Their Medicine. Center for Disease Control and Prevention Web Site. <https://www.cdc.gov/vitalsigns/pdf/2016-09-vitalsigns.pdf> Updated September 20, 2016. Accessed November 18, 2018
- ²¹ CDC Public Health Grand Rounds Healthy Ageing: Promoting Well-being in Older Adults. Center for Disease Control and Prevention Web Site. <https://www.cdc.gov/grand-rounds/pp/2017/20170919-senior-aging.html> Updated September 19, 2017. Accessed November 28, 2018
- ²² NCCDPHP. Centers for Disease Control and Prevention Web site. <https://www.cdc.gov/chronicdisease/resources/infographic/nccdphp.htm> Updated August 7, 2017. Accessed February 28, 2018.
- ²³ Facts about physical activity. Centers for Disease Control and Prevention Web site. <https://www.cdc.gov/physicalactivity/data/facts.htm> Updated May 23, 2014. Accessed February 21, 2018.
- ²⁴ Adult obesity facts. Centers for Disease Control and Prevention Web site. <https://www.cdc.gov/obesity/data/adult.html>. Updated August 29, 2017. Accessed February 21, 2018.
- ²⁵ Unfit to Serve Obesity Is Impacting National Security. Center for Disease Control and Prevention Web Site. <https://www.cdc.gov/physicalactivity/downloads/unfit-to-serve.pdf> Updated August 23, 2018. Accessed November 28, 2018
- ²⁶ Diabetes. Centers for Disease Control and Prevention Web site. www.cdc.gov/chronicdisease/resources/publications/aag/diabetes.htm Updated July 25, 2016. Accessed February 28, 2018.
- ²⁷ Diabetes quick facts. Centers for Disease Control and Prevention Web site. <https://www.cdc.gov/diabetes/basics/quick-facts.html> Updated July 24, 2017. Accessed February 28, 2018.
- ²⁸ Heart disease fact sheet. Centers for Disease Control and Prevention Web site. https://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_heart_disease.htm Updated August 23, 2017. Accessed February 28, 2018.
- ²⁹ Stroke facts. Centers for Disease Control and Prevention Web site. <https://www.cdc.gov/stroke/facts.htm> Updated September 6, 2017. Accessed February 28, 2018.
- ³⁰ High blood pressure fact sheet. Centers for Disease Control and Prevention Web site. https://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_bloodpressure.htm Updated June 16, 2016. Accessed February 28, 2018.
- ³¹ High blood pressure facts. Centers for Disease Control and Prevention Web Site. <https://www.cdc.gov/bloodpressure/facts.htm> Updated November 30, 2016. Accessed February 28, 2018.
- ³² Heart disease and stroke. Centers for Disease Control and Prevention Web Site. <https://www.cdc.gov/chronicdisease/resources/publications/aag/heart-disease-stroke.htm> Updated January 25, 2018. Accessed March 5, 2018.
- ³³ Blumen H, Fitch K, Polkus V. Comparison of treatment costs for breast cancer, by tumor stage and type of service. *Am Health Drug Benefits*. 2016; 9(1): 23-32.
- ³⁴ Amri R, Bordeianou LG, Sylla P. (2013). Impact of screening colonoscopy on outcomes in colon cancer surgery. *JAMA Surg*. 2013; 148(8): 747-754. doi: 10.1001/jamasurg.2013.8
- ³⁵ Alzheimer's disease. Centers for Disease Control and Prevention Web Site. <http://www.cdc.gov/aging/aginginfo/alzheimers.htm> Updated October 13, 2017. Accessed February 21, 2018.
- ³⁶ 2017 Alzheimer's disease facts and figures. Alzheimer's Association Web Site. <http://www.alz.org/facts> Published 2017. Accessed February 21, 2018.