DEPARTMENT of HEALTH and HUMAN SERVICES

Fiscal Year 2019

Centers for Disease Control and Prevention

Justification of Estimates for Appropriation Committees

MESSAGE FROM THE DIRECTOR

As Acting Director of the Centers for Disease Control and Prevention, I present the Fiscal Year 2019 Congressional Justification for the Centers for Disease Control and Prevention (CDC), the nation's health protection agency. CDC works 24 hours a day, 7 days a week to keep America healthy, safe and secure.

We accomplish our public health mission through putting science into action; rapidly detecting and containing diseases, outbreaks, biosecurity threats and environmental hazards; and working with state and local health departments to strengthen communities and increase public health impact.

Our fiscal year 2019 budget request includes:

- Continued emphasis on global health security capacity development primarily through the Global Health Security Agenda to protect Americans from the threat of emerging infectious diseases
- Ongoing efforts to reduce deaths due to opioid abuse, misuse and overdose
- New activities focused on infectious disease elimination in select jurisdictions, including those with high rates of opioid-related transmission
- Investments that protect mothers and babies from emerging threats and build capacity to respond to vector-borne diseases

CDC scientists and disease detectives work around the world to track diseases, research outbreaks, and respond to emergencies. We carry out research that leads to the best solutions to fight disease and protect health, and we get results through proven, lifesaving actions that defend Americans against health threats. Performance improvement is a critical aspect of our work, and we regularly measure how our programs serve the public and meet key public health goals. We are committed to maximizing the impact of every dollar entrusted to our agency.

Sincerely,

Anne Schuchat, MD (RADM, USPHS)
Acting Director, Centers for Disease Control and Prevention

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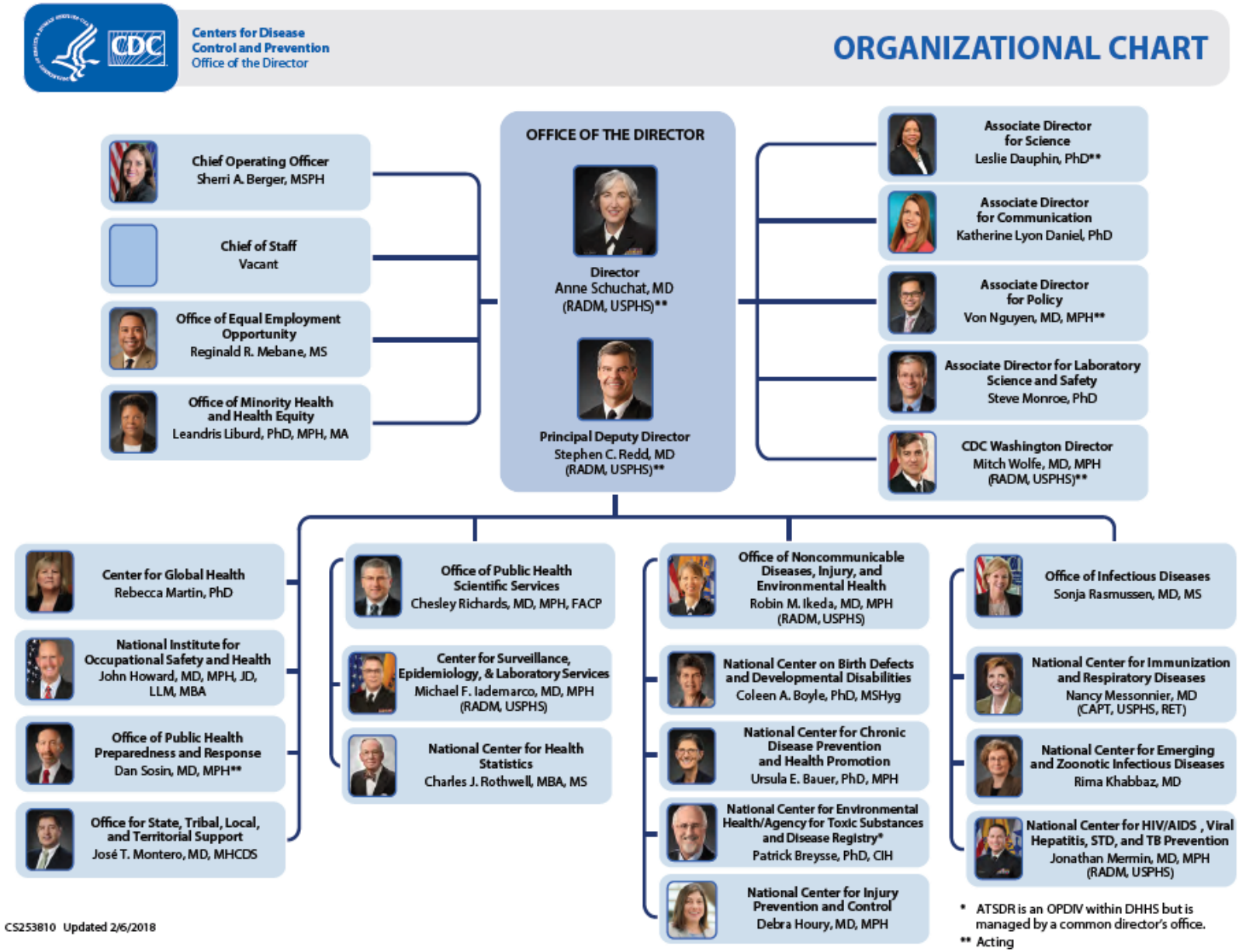
CDC ORGANIZATIONAL CHART



INTRODUCTION AND MISSION

The Centers for Disease Control and Prevention (CDC) is part of the Department of Health and Human Services.

CDC is the nation's public health protection agency. We are the Common Defense of the Country against public health threats. CDC staff work home and abroad to protect America from health, safety, and security threats, both domestic and foreign. CDC increases the health security of our nation.

We accomplish our public health mission through three key pillars: a deep commitment to and reliance on science; surveillance that helps guide our investigations and interventions; and service to those who need our assistance domestically and globally.

This forms the foundation of CDC's mission. Each CDC program contributes through comprehensive public health activities. CDC's highly trained staff provide critical national and international leadership to increase America's health security.

CDC carries out its mission and fulfills its unique public health role by:

- Turning science into action to protect people from public health threats,
- Collecting mission critical data to inform decision making about health threats,
- Being prepared to combat any threat to the health and safety of American citizens, no matter where in the world it might first arise,
- Using data to evaluate and implement the best science-based programs to improve health, and
- Sharing information with the public, telling them what we know, when we know it, so people can decide how best to protect themselves and their families.

www.cdc.gov/budget

EXECUTIVE SUMMARY

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OVERVIEW OF BUDGET REQUEST

The fiscal year (FY) 2019 budget request for CDC and ATSDR includes a total funding level of $5,722,755,000 in discretionary budget authority and PHS Evaluation Funds. This is $1,372,185,000 below the FY 2018 Annualized Continuing Resolution (CR) level. The FY 2019 budget request maintains a number of programmatic reductions and eliminations proposed in the FY 2018 President's Budget.

The budget request supports the Administration's commitment to improved health outcomes and lower healthcare costs, and invests in activities to both extend and improve the quality of American lives. CDC provides for the Common Defense of the Country against public health threats, and serves the country through its science. With these funds, CDC will continue to provide the best possible public health information and programs so the American public can decide how to best protect themselves and their families. CDC scientists, laboratorians, and disease detectives will continue to work around the clock and around the world to identify, prepare for, and respond to disease threats. These investments keep Americans safe and healthy.

The CDC budget request contains three initiatives:

- Global health security capacity development, in support of the Global Health Security Agenda (+$59 million)
- Elimination initiative to jointly address infectious diseases in select jurisdictions at high risk, including those with high rates of opioid-related transmission(+$40 million)
- Innovative pregnancy and birth defects registries to monitor the effects of Zika virus and other emerging threats to mothers and babies (+$10 million)

Carried forward from the FY 2018 President's Budget, CDC's FY 2019 request also includes funding increases above the FY 2018 Annualized CR level for:

- Vector-borne diseases (+$12.6 million)
- Buildings and Facilities (+$20.0 million)

The proposal in the FY 2018 President's Budget to establish the *America's Health* Block Grant is maintained in the FY 2019 budget request, at a level of $500.0 million.

Within the total requested, CDC is requesting $50.0 million for business services. This one-time investment will fill critical gaps in business services that support CDC's research and programmatic activities. These funds will be deposited into the Working Capital Fund reserve.

In addition to CDC's discretionary funding request for FY 2019, the budget includes the following mandatory funding levels:

Vaccines for Children = $4.7 billion, an increase of $325.6 million above the FY 2018 estimate.

World Trade Center Health Program = $469.2 million, an increase of $49.2 million above the FY 2018 estimate.

The Energy Employees Occupational Illness Compensation Program Act (EEOICPA) is proposed for consolidation into the National Institutes for Health (NIH), and will be presented within the NIH budget.

The funding amounts and programmatic approaches described below are changes compared to the FY 2018 Annualized Continuing Resolution (CR) level.

New Initiatives

Global Health Security Capacity Development (+$59.0 million, two-year period of availability)

These new resources will allow CDC to continue on-going work towards the goals of the Global Health Security Agenda (GHSA) by supporting activities to improve other nations' ability to prevent, detect, and respond rapidly and effectively to emerging infectious disease threats. Supporting other nations' ability to identify and contain outbreaks at their source will save lives and money. Better protection from these threats, finding and stopping them at their borders, will protect the health of all Americans. CDC will build on its foundation of technical expertise to continue assisting countries in building and improving their own disease surveillance and laboratory capacities. These funds will allow CDC to continue their commitments to the GHSA as planned through the end of FY 2019. Given the complex and challenging nature of countries in which CDC will be working, multi-year funding will ensure funds are spent efficiently and allow sustainable implementation of programs that require more than a single year for preparation and execution.

Infectious Disease Elimination Initiative (+$40.0 million)

This new initiative will focus on jointly eliminating HIV transmission, viral hepatitis, sexually-transmitted infections, and tuberculosis using intensive prevention, screening, and treatment/referral to treatment efforts. Activities will be focused in select states/jurisdictions at high-risk for infectious disease, including those with high rates of opioid-related transmission. New advances in diagnostics, treatment, and surveillance tools provide the opportunity to detect and eliminate multiple interrelated infections. These efforts include focusing on diagnosing infections and curing people of latent TB infection and active TB disease, syphilis and other STIs, and HCV; effectively treating HIV and HBV; and implementing efforts to prevent new infections with these pathogens. In addition, the recent HIV and hepatitis C outbreak in Indiana is powerful evidence that persons who inject drugs (PWID), including opioids, are at high risk for both HIV and viral hepatitis, and that these blood borne infections can gain ground at any time unless the nation remains vigilant about prevention, testing, and care. CDC's clinical and community-based infectious disease programs can be leveraged to detect and eliminate multiple interrelated infections in targeted geographic locations.

Emerging Threats to Mothers and Babies (+$10.0 million)

Mothers and babies are often at higher risk during any kind of public health emergency. During previous outbreaks and pandemics, federal, state, and local officials have had to start from scratch to establish registries of pregnant women to monitor the impact of the disease on mothers and babies, as well as to assess the safety and effectiveness of treatment. In many cases, there will be a scientific need to follow the mothers and their babies for some time after the emergency to determine the longer-term consequences of exposure to the disease and/or its treatment. The creation and implementation of the innovative Zika pregnancy and infant registry represents a major paradigm shift to ensure that mothers and babies are adequately monitored and quickly informed about the impact of an emerging threat, including serious birth defects. With funding through this initiative, CDC will continue to work with states to maintain ongoing registries that can be rapidly adapted to any new or emerging public health threat. This enhanced surveillance system, coordinated by CDC in collaboration with state, tribal, territorial, and local health departments, will continue to monitor mothers and babies for the impact of Zika and can be leveraged for other emerging infectious diseases (e.g., pandemic influenza) and other emerging threats (e.g., opioid use during pregnancy and neonatal abstinence syndrome). This approach is unique to public health because the data are rapidly used to inform public health action to help mothers and babies. This action includes prevention strategies, clinical guidance, enhanced follow-up, and targeted screening and evaluation for infants with congenital Zika virus exposure or other maternal exposures, and identification of medical and early interventions to help children thrive. CDC will support ongoing Pregnancy

and Infant registries in 4-8 highest risk jurisdictions and provide on-site support for local health departments in jurisdictions experiencing public health threats. CDC will develop a pilot in 2-4 jurisdictions to extend the registry to capture other emerging threats. In addition, CDC will work collaboratively with state, local, and territorial health departments to extend the follow up of babies born to mothers with evidence of Zika infection to better understand the full impact of Zika on child development, and work with healthcare providers and others to develop better assessment and communication tools.

Opioid Abuse and Overdose Prevention (+$175.0 million)

The FY 2019 President's Budget Request includes $10.0 billion in new resources invested across Department of Health and Human Services (HHS) for a variety of new and expanded efforts to fight the opioid crisis and address mental illness. As part of this effort, the FY 2019 President's Budget Request would initially allocate $175.0 million to expand CDC's on-going efforts to address the opioid epidemic.

CDC has unique scientific expertise to prevent people from getting addicted to opioids in the first place by improving opioid prescribing. With this funding, CDC will scale up programmatic prevention initiatives across all 50 states and Washington, D.C. This increase will provide critical resources needed to promote the use of Prescription Drug Monitoring Programs (PDMP) data to inform action, amplify messaging within states to educate about the risks associated with opioids, strengthen prevention activities at the community level for a more customized response, and target populations of particular need, including rural and tribal communities. Funds also will be used to conduct a rigorous evaluation to increase our knowledge of effective interventions that can be applied throughout the United States. Additionally, CDC will advance its understanding of the opioid overdose epidemic by increasing the timeliness and improving the quality of morbidity and mortality data. CDC will move science to action by partnering with states and localities to implement innovative strategies, including initiating surveillance activities to promote linkage to treatment for individuals with an opioid use disorder and linking PDMP data to mortality data to inform prevention strategies.

Consolidations and Reforms

Strategic National Stockpile

The FY 2019 Budget transfers the Strategic National Stockpile to the Department of Health and Human Services (HHS) Office of the Assistant Secretary for Planning and Response to streamline the medical countermeasure development and procurement enterprise and increase operational efficiencies during emergency responses by fully integrating the Stockpile with other HHS preparedness and response capabilities.

Occupational Safety and Health

The FY 2019 Budget consolidates the funding and administration of activities within the National Institute for Occupational Safety and Health from CDC to NIH. In addition to activities supported by discretionary funding, this reform will also consolidate the Energy Employee Occupational Injury Compensation Act program from CDC to NIH. CDC will maintain administration of the World Trade Center Health Program.

Related to these consolidations and reforms, a one-time increase of $50.0 million for business services is requested to fill critical gaps in business services that support CDC's research and programmatic activities. These funds will be deposited into the Working Capital Fund reserve.

Reductions and Eliminations

The FY 2019 budget request continues a number of programmatic reductions and eliminations first proposed in the FY 2018 President's Budget. These are identified in the narrative sections for each appropriations account.

Reductions and eliminations proposed for the first time in FY 2019 are summarized below, by account, in descending order.

Public Health Preparedness and Response (-$595.5 million)

The FY 2019 budget request maintains the reductions to CDC Preparedness and Response, as well as the elimination of the Academic Centers for Public Health Preparedness proposed in FY 2018. This reduction in the FY 2019 Budget reflects the transfer of the Strategic National Stockpile to the HHS Office of the Assistant Secretary for Preparedness and Response.

Preventive Health and Health Services Block Grant (-$144.5 million)

The FY 2019 budget request maintains the elimination of the Preventive Health and Health Services Block Grant (PHHSBG) as proposed in the FY 2018 President's Budget.

Chronic Disease Prevention and Health Promotion (-$138.3 million)

The FY 2019 budget request reduces funding for Chronic Disease Prevention and Health Promotion. The request also maintains eliminations and reductions proposed in the FY 2018 President's Budget.

Emerging and Zoonotic Infectious Diseases (-$60.0 million)

The FY 2019 budget request reduces funding for Emerging and Zoonotic Infectious Diseases, and maintains program eliminations for Prion Diseases and Chronic Fatigue Syndrome as proposed in the FY 2018 President's Budget. Funding to support the on-going Antibiotic Resistance (AR) Initiative is reduced as well.

Immunization (-$52.6 million)

The FY 2019 budget request reduces funding for the Immunization Program. CDC will work collaboratively with its awardees and providers to sustain record-high childhood immunization coverage rates and ensure that all Americans have access to vaccines. At this funding level, CDC will continue to provide funding to the 64 immunization awardees for state infrastructure awards and vaccine direct assistance, but at a reduced level. CDC will also continue providing technical assistance and laboratory support to states and local communities responding to vaccine-preventable disease investigations, including outbreaks, but at a reduced level.

Birth Defects, Developmental Disabilities, Disability and Health (-$26.6 million)

The FY 2019 budget request reduces funding for the National Center on Birth Defects and Developmental Disabilities. At the proposed level, CDC will focus its birth defects and developmental disabilities portfolio on core public health activities that align with CDC's mission and have proven interventions to make an impact on America's health.

Public Health Scientific Services (-$26.0 million)

The FY 2019 budget request reduces funding for the National Center for Health Statistics (NCHS), as well as the funds that support the public health workforce, surveillance, epidemiology, and informatics. At the reduced capacity, the platform supported by NCHS will continue to provide information on emerging issues of public health importance for CDC and HHS. CDC will reduce the number of trained disease detectives and rapid outbreak responders.

Global Health (-$23.4 million)

The FY 2019 budget request reduces funding for global health activities. The majority of the reduction is from CDC's Global HIV/AIDS program, which provides infrastructure and base support for CDC's ongoing President's Emergency Plan for AIDS Relief (PEPFAR) activities. The reduction reflects the Administration's intent to further focus funds on countries, populations, and programs where resources will have the greatest public health impact, optimize staffing and technical resources to address the highest priority global HIV need, and ensure that ongoing activities are consistent with overall PEPFAR priorities and are lean, efficient and effective. CDC will focus its global immunization activities to continue progress towards polio eradication, as well as measles and rubella elimination in countries with the highest disease burden.

Environmental Health (-$21.0 million)

The FY 2019 budget request reduces funding for Environmental Health, maintaining eliminations for Climate and Health and the Amyotrophic Lateral Sclerosis Registry proposed in the FY 2018 President's Budget.

Injury Prevention and Control (-$17.8 million)

The FY 2019 budget request reduces funding for Injury Prevention and Control, and maintains eliminations proposed in the FY 2018 President's Budget for Elderly Falls and the Injury Control Research Centers. CDC will continue its emphasis on Opioid Abuse and Overdose Prevention, and will focus its injury prevention portfolio on core public health activities that protect America's health.

Agency for Toxic Substances and Disease Registry (-$12.2 million)

The FY 2019 budget request reduces funding for the Agency for Toxic Substances and Disease Registry (ATSDR). This reduction will reduce the number of public health assessments and consultations that ATSDR will be able to conduct in response to community requests.

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OVERVIEW OF PERFORMANCE

CDC is the common defense of the country against health threats, committed to keeping Americans safe from threats to health, safety, and security. To achieve maximum public health impact, CDC conducts research; implements strategic, evidence-based programs; and monitors results through ongoing data collection.

CDC's priorities form the core of its public health programs. These programs require the scientific excellence and leadership of our highly trained staff, who are dedicated to high standards of quality and ethical practice. The agency's priorities include:

- Strengthening public health and clinical linkages.
- Protecting Americans from infectious diseases.
- Preventing the leading causes of disease, disability, and death.
- Ensuring global disease protection.

Performance in each of these areas and in all of CDC's work is strengthened through the use of rigorous and ongoing performance metrics and program evaluation data to monitor program effectiveness and compare performance to established targets. The accomplishments described below highlight the importance of investing in public health, preventing disease, and protecting health.

Strengthen Public Health and Clinical Linkages and Protect Americans from Infectious Diseases

- CDC awarded more than $300 million to state, local, and territorial health departments in 2017 through the Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) Cooperative Agreement. This support included $117 million for states' continued vigilance against Zika Virus by strengthening state and local disease surveillance and response, laboratory testing and diagnosis and vector control efforts and $77 million for activities to combat antimicrobial resistance (AR), including enhancements to a newly established AR laboratory network.
- In 2017, CDC continued to support the U.S. Zika Pregnancy and Infant Registry. Data collected as part of the Registry helped inform updated guidance for health care providers caring for pregnant women or infants with possible Zika virus exposure. CDC staff also developed and disseminated 17 new or updated resources in support of the 2017 updated clinical guidance, including testing algorithms, patient education materials, pretest counseling clinician scripts, and roadmaps for parents.
- In 2016, CDC, the U.S. Food and Drug Administration (FDA), and multiple state health departments investigated several clusters of Burkholderia cepacia infections related to contaminated drug products and medical supplies. Following initial reports, CDC quickly tested and confirmed the contamination in its lab, issued a national call for cases, and launched an investigation in close coordination with FDA and numerous hospitals, health departments, and laboratory partners. CDC sent out several national health alerts recommending facilities not use these contaminated products, ultimately saving lives and preventing additional infections from occurring.
- CDC assisted health officials in 15 U.S. states and Canada in response to an outbreak of Seoul virus—a type of hantavirus—spread by pet rats to people that was initially reported in Wisconsin and infected 17 people in 7 states. CDC assisted states with determining where infected rats may have come from and where they were distributed, as well as how many people were infected with the virus. CDC worked closely with Canadian health officials, who investigated linked cases in some Canadian provinces.
- In 2017, CDC experts assisted 45 states and U.S. territories, Washington, D.C., a tribal government, and five foreign countries with 124 containment responses, and provided laboratory testing, on-site visits, and/or technical assistance for 111 outbreaks or infection control breaches that occurred in healthcare settings.

- The Community Approaches to Reducing STDs (CARS) 2 Project supported efforts to improve the health of populations disproportionately affected by HIV/AIDS, viral hepatitis, STIs and TB by maximizing the health impact of public health services, reducing disease prevalence, and promote health equity. A national-level evaluation of STI prevention programs showed that communities that are actively engaged in the development, implementation, and evaluation of STI prevention interventions were more likely to 1) engage at-risk populations, 2) increase STI screening services, 3) conduct community-tailored provider training and 4) provide referral services for social issues that contribute to the burden of STIs.
- CDC along with various partners have sequenced over 3,000 genomes from gonococcal strains with a range of resistance profiles collected from across the U.S. and by international partners. CDC sequenced gonococcal strains that demonstrated decreased susceptibility to azithromycin or the cephalosporin antibiotic class that are currently recommended for treatment.
- CDC provides vaccines through the Vaccines for Children program to over 50% of U.S. children. The most recent National Immunization Survey showed the percentage of children receiving no vaccinations remained <1% and over 90% of children were up to date on vaccination against polio; hepatitis B; measles, mumps and rubella; and varicella. Among children born during 1994–2013, vaccination will prevent an estimated 322 million illnesses, 21 million hospitalizations, and 732,000 deaths over the course of their lifetimes, at a net savings of $295 billion in direct costs and $1.38 trillion in total societal costs.
- In FY 2015, CDC developed new guidance to shorten the interval for post-vaccination serologic testing for infants born to mothers infected with hepatitis B virus, thereby reducing the need for unnecessary revaccination, providing earlier protection for non-responding infants, and conserving public health resources involved in case management services.
- In May 2016, CDC launched the web version of the Global Hepatitis Outbreak and Surveillance Technology (GHOST), which employs Next-Generation sequencing of the hepatitis C virus (HCV) genome to detect similar HCV strains potentially indicative of transmission networks. This system also helps detect hepatitis B virus and HCV networks of viral strains circulating among people who inject drugs (i.e., opioids) and other populations at risk for HIV transmission. GHOST allows state and local access to this new technology with the potential to aid in outbreak investigations.

Prevent the Leading Causes of Illness, Injury, Disability, and Death

- Under CDC's Prevention for States Program, the Kentucky All Schedule Prescription Electronic Reporting (KASPER) system is enhancing patient opioid prescription data available to providers in its prescription drug monitoring program (PDMP), including making it easier for providers to compare the strength of different opioids, as well as compare their prescribing patterns with other prescribers. During 2016, KASPER responded to over 7.3 million report requests, an increase of 7% from 2015. Approximately 1.8 million of those requests were from authorized users of other state PDMPs that share data with Kentucky.
- In 2017, 49 sites, representing over 2,100 emergency department or urgent care facilities, contributed data to CDC's National Syndromic Surveillance Program's (NSSP's) Biosense Platform. This surveillance platform can be used to share information and investigate disease threats that cross jurisdictions. For instance, the NSSP was designated by CDC as the surveillance source for states to use to collect, analyze and share data in support of the opioid response.
- In October of 2016, CDC released its first-ever Early Care and Education (ECE) State Indicator Report which highlights state efforts to address childhood obesity in the ECE setting. This report looks at seven areas within CDC's Spectrum of Opportunities framework and identifies 15 indicators measuring state-level policies and system supports that can help prevent childhood obesity. Of 25 states that made ECE facility licensing updates from 2011-2014, all included obesity prevention. Of the 39 states that have ECE

quality ratings, 29 include obesity prevention standards. Forty two states offered online professional development opportunities for ECE providers covering obesity prevention topics.

- CDC funding and support helped Wisconsin establish a Comprehensive School Physical Activity Program (CSPAP) in over 450 schools to ensure that more than 300,000 students get 60 minutes of physical activity per day. The CSPAP includes strategies that are effective, low-cost, and easy to adopt in the school setting, such as increasing active minutes of physical education in class, providing active recess, and promoting family and community physical activity outside of school.
- As of November 2017, 22% of all U.S. births (~894,000 babies per year) were occurring in hospitals that have optimal policies and practices that support breastfeeding, as a result of CDC's investments and promotion of evidence based policies and maternity care practices. This percentage included 467 hospitals across 50 states, Washington, D.C., and Puerto Rico.
- Million Hearts® completed its first five-year phase in December 2016. Looking back over that time period (2012-2016), an estimated 115,000 cardiovascular events were prevented in the first two years of the Million Hearts® initiative, and significant gains were made in the reduction of tobacco use, elimination of trans fat, and performance in the ABCS (Aspirin use, Blood pressure control, Cholesterol management, and Smoking cessation).
- Since the program started in 1991, CDC's National Breast and Cervical Cancer Early Detection Program has served more than 5.3 million women and found over 63,000 cases of breast cancer, over 4,000 cases of invasive cervical cancers and approximately 200,000 cases of precancerous cervical lesions.
- In July 2015, CDC provided funding to 30 state, university, and tribal grantees to implement the Colorectal Cancer Control Program (CRCCP). CRCCP grantees partner with health systems and clinics serving high-need populations to implement evidence based interventions to increase colorectal cancer (CRC) screening rates. In FY2016, CRCCP grantees partnered with over 400 clinics that serve over 700,000 patients ages 50-75. On average, colorectal screening rates in the partner clinics increased from 33% at baseline to 39%. In contrast, national screening rates for the U.S. only increased approximately 1% over two years from 2012 (65.4%) to 2014 (66.3%).
- In 2017, CDC's National Tobacco Education Campaign, Tips from Former Smokers® generated over 267,000 more calls during the campaign which ran from January 9 - July 30, 2017. This is an increase of over 17,000 additional calls compared to the 2016 campaign and represents the largest increase in call volume since the 2012 campaign. Since the campaign's inception, CDC estimates millions of Americans have tried to quit smoking cigarettes, and at least 500,000 cigarette smokers have quit for good as a result of the Tips® campaign.
- From 1999-2004 to 2011-2014, the percentage of low-income children with dental sealants increased approximately 70%. The increase in sealants among low-income children prevented almost 1 million cavities.

Ensure Global Disease Protection

- CDC supported the Zika Emergency Response through advancements in Zika diagnostics, including the application for and receipt of Emergency Use Authorizations for two Zika assays. To drastically cut the time and expense of producing Zika antigen for assays, CDC also developed virus-like particles (VLP). Non-infectious Zika VLPs increase safety and can be generated 10 times more quickly than conventional antigens.
- In March 2016, CDC developed and deployed the first FDA-authorized tests for Zika through the Laboratory Response Network for Biological Agents (LRN-B). As of April 2017, CDC has distributed 1.1 million tests worldwide to fill the diagnostic gap until commercial tests are available.
- In FY 2017, CDC supported 7.2 million people on life-saving antiretroviral treatment (ART) to over half of the 13.3 million people receiving ART support through PEPFAR.

- Since CDC and partners began to work towards eradication, polio cases have decreased from more than 350,000 per year in 1988 to 74 in 2015 and 36 in 2016. Three countries continue to record low-level transmission of wild poliovirus: Afghanistan, Pakistan, and Nigeria.
- CDC's Field Epidemiology Training Program (FETP) has trained more than 10,000 disease detectives since 1980 and currently operates in 74 countries. FETP Advanced residents responded to 556 suspected outbreaks or public health emergencies in 2016.

Other CDC Accomplishments

- In 2016, CDC labs tested more than 8,000 specimens from U.S. residents and government overseas staff for parasitic diseases and responded to approximately 7,500 inquiries via its 24/7 hotline, many of them urgent requests related to life-saving consultations, diagnosis, and treatment.
- CDC developed and deployed the first FDA-authorized tests for Zika through the Laboratory Response Network for Biological Agents (LRN-B) in March 2016. Since then, CDC has distributed more than 1 million tests worldwide to fill the diagnostic gap until commercial tests are available.
- In 2017, CDC awarded $6 million to 45 Level 1 and Level 2 chemical laboratories to replace critical laboratory equipment needed for toxic metal testing per LRN requirements for chemical laboratories.
- CDC's Blood Disorders Laboratory provided testing and reporting to determine the status of inhibitors, which can prohibit medicine needed to stop bleeding from working, on over 8,000 patients since 2014. CDC identified or confirmed newly developed inhibitors in at least 45 patients, detecting their need for specialized medical expertise and care to resolve their inhibitor as soon as possible.
- CDC data and research paved the way for a 2016 FDA decision to permit fortification of corn masa flour with folic acid, which could reduce neural tube defects—severe birth defects of the brain and spine—particularly among the nation’s Hispanic population.
- CDC published the first nationally representative estimates of Attention Deficit Hyperactivity Disorder (ADHD) diagnosis and treatment in preschoolers. The study shows nearly a quarter of a million children aged 2 to 5 years in U.S. had an ADHD diagnosis in 2011 and 2012, an increase of more than 50% from 2007. Among these children, only about 50% received behavioral treatment for their ADHD.
- In 2015, CDC launched the Vital Statistics Rapid Release program to provide access to the timeliest vital statistics for public health surveillance, through quarterly releases of provisional estimates of 15 leading causes of death, and additional causes of death on important public health topics, such as drug overdose deaths and estimates of births and infant deaths. Comparisons of these quarterly estimates can be made with corresponding quarters from the previous year, providing more timely information on important public health indicators.
- CDC funds improved youth access to key health services. The median percentage of priority school districts that implemented a written procedure for referrals to off-site health providers increased from fewer than a third (28%) to nearly half (48%).
- CDC funds several National Centers of Excellence in Youth Violence Prevention whose research shows that prevention is possible. For example, the Virginia Commonwealth University’s (VCU) Clark-Hill Institute for Positive Youth Development, community partners, and city agencies coordinated and implemented a set of school-based and family-focused programs. They demonstrated that, relative to areas of the community not receiving the intervention, areas receiving the intervention had a 13% lower risk of youth violence based on police reports.
- In FY 2017, Michigan State University was awarded funding to establish the Flint Registry to identify, track and support residents exposed to Flint water between 2014-2015.
- CDC used state-of-the-art biomonitoring methods to produce the first nationally representative information on exposure to per- and polyfluoroalkyl substances (PFAS) among U.S. children 3-11 years of age. PFAS are a large group of man-made chemicals that have been used in industry and consumer products worldwide since the 1950s whose health effects in humans are unknown. These data can help

identify higher exposures among pre-school and elementary-school aged children and confirm widespread exposure even among children born a decade after discontinuation of certain PFAS.

- In March 2016, CDC published a Health Hazard Evaluation Report regarding an investigation of law enforcement agent exposures to synthetic drugs during a raid of a clandestine lab. CDC's Health Hazard Evaluation program found markers of exposure in agents' urine after the raid and recommended work practice and environmental changes to reduce exposure.
- During 2016 and 2017, CDC's Morbidity and Mortality Weekly Report (MMWR) ranked 2nd in popularity among 170 public, environmental, and occupational health journals.
- In FY 2017, CDC managed and made ongoing improvements and redesigns to its critical Zika Website. Based on usability testing, the redesigns increased the success rate of finding Zika content from 58% to 90%.
- As of July 2017, accredited health departments serve 64% of the U.S. population. CDC's Public Health Accreditation Board (PHAB) has accredited 190 health departments - 26 states, 1 tribe, and 229 local health departments. More than 90% of accredited health departments report experiencing benefits such as stimulation of quality and performance improvement, increased accountability and transparency, and improved management processes.
- In FY 2016, over 329,000 free continuing education credits, contact hours, and units were awarded to over 126,032 unique health professionals, resulting in close to $3 million in savings to the workforce as free continuing education.
- CDC assigned 60 field staff to state, local, and territorial health departments in 2017, strengthening each agency's public health capabilities. These staff consisted of
    - 36 Career Epidemiology Field Officers (CEFOs) in 31 jurisdictions to support development of surveillance, outbreak response, and community assessment.
    - 21 Preparedness Field Assignees (PFAs) in 18 jurisdictions to support development of multiple preparedness capabilities based on jurisdictional need.
    - 2 public health advisors in two jurisdictions and seven medical countermeasures (MCM) specialists in seven regions to support development of MCM and other public health preparedness capabilities.
    - 1 temporary Epidemiology Field Assignees (TEFAs) in one jurisdiction to support response to Ebola and other epidemic diseases.
- CDC developed and administered an informatics field assignee (IFA) pilot to address the limited number of public health informatics staff working in state and local health Departments and to help enhance state informatics and health information technology capabilities. Field assignees have been placed in Kentucky, North Carolina, and South Dakota for up to two years to advance informatics initiatives.
- In FY 2016 – FY 2017, CDC demolished or partially demolished a total of twenty-two buildings at its Pittsburgh Campus comprising over 19,400 square feet. At the $10.29 per square foot targeted building and facility operating cost, this amounts to an annual cost savings of approximately $200,000.
- In FY 2017, CDC installed photovoltaic (PV) arrays across metro-Atlanta CDC-owned campuses. The PV arrays, which convert sunlight into electricity, will generate an estimated $63,000 in electricity annually. This is a net project savings of over $900,000 by year 25 – the expected life span of the arrays.

Agency Performance Planning and Management

CDC conducts continuous quality improvement through priority and goal setting, performance measurement, and program evaluation. CDC collects information on program priorities, measurable outcomes, strategies, and progress through annual updates. CDC is currently assessing ways to strengthen its approach to better align with data-driven review principles, including the use of management and administrative data as part of regular data-driven reviews. Additionally, in 2016, CDC developed a Performance Improvement Framework to advance a culture of performance improvement and build performance improvement capacity at all levels of the agency.

The CDC awards nearly 80 percent of its budget through grants and contracts to help accomplish its mission to promote health and quality of life by preventing and controlling disease, injury, and disability. Contracts procure goods and services used directly by the agency, and grants assist other health- related and research organizations that contribute to CDC's mission through health information dissemination, preparedness, prevention, research, and surveillance. Many CDC grant announcements require applicants to assess the health burden of their region, state or community. CDC surveillance systems often serve as the basis for the data used in applications.

Agency Use of Evaluation and Evidence

CDC fully supports the use of evidence and evaluation. CDC supports scientific advances and the use of evidence and data to support program design and budget decisions. CDC continues to focus on the development and use of evidence to enhance all aspects of the Agency's mission.

CDC builds evidence regarding effective programs through its own evaluation, through systematic reviews of existing literature, through the use of rigorous methods to develop vaccination recommendations (ACIP's GRADE), and by finding innovative ways to make data accessible for public health decision making (e.g., Sortable Stats).

CDC promotes evidence-based prevention interventions in our grant announcements, shares best practices through websites, searchable databases and other means, and is exploring additional strategies for promoting the use of evidence in practice such as performance-based grant making and recognition awards.

CDC is increasing its internal capacity to oversee and conduct program evaluation by expanding and enhancing the evaluation training available to employees through CDC University, developing an evaluation fellowship to expand program evaluation expertise, recruiting external subject matter planning and evaluation experts to "coach" CDC programs on related challenges, and by putting standard program evaluation guidelines and recommendations into place. CDC has also adapted an IOM framework to measure the impact of CDC science and gauge its scientific influence on subsequent events and actions that lead to health improvements.

Alignment to Administration Priorities and Initiatives

CDC is committed to supporting the national priorities set by the Administration, including those outlined in the FY 2019 HHS performance plan.

ALL PURPOSE TABLE

(dollars in thousands)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 +/- FY 2018
Immunization and Respiratory Diseases	**$793,274**	**$744,766**	**$700,828**	**($43,938)**
Budget Authority	$453,924	$451,910	$700,828	$248,918
ACA/PPHF	*$324,350*	*$292,856†*	*$0*	*($292,856)*
PHSSEF	*$15,000*	*$0*	*$0*	*$0*
HIV/AIDS, Viral Hepatitis, STI and TB Prevention	**$1,114,652**	**$1,109,691**	**$1,117,278**	**$7,587**
Emerging and Zoonotic Infectious Diseases[1]	**$575,704**	**$568,308**	**$508,328**	**($59,980)**
Budget Authority	$523,704	$521,357	$508,328	($13,029)
ACA/PPHF	*$52,000*	*$46,951†*	*$0*	*($46,951)*
Chronic Disease Prevention and Health Promotion	**$1,113,632**	**$1,077,500**	**$939,250**	**($138,250)**
Budget Authority	$775,682	$772,365	$939,250	$166,885
ACA/PPHF	*$337,950*	*$305,135†*	*$0*	*($305,135)*
Birth Defects, Developmental Disabilities, Disability and Health	**$137,242**	**$136,626**	**$110,000**	**($26,626)**
Environmental Health[2]	**$215,363**	**$177,987**	**$157,000**	**($20,987)**
Budget Authority	$198,363	$162,638	$157,000	($5,638)
ACA/PPHF	*$17,000*	*$15,349†*	*$0*	*($15,349)*
Injury Prevention and Control	**$285,506**	**$284,116**	**$266,309**	**($17,807)**
Public Health Scientific Services[1]	**$496,226**	**$494,019**	**$468,000**	**($26,019)**
Budget Authority	$496,226	$494,019	$332,180	($161,839)
PHS Evaluation Transfer	*$0*	*$0*	*$135,820*	*$135,820*
Occupational Safety and Health	**$334,405**	**$332,924**	**$0**	**($332,924)**
Global Health	**$434,120**	**$432,166**	**$408,762**	**($23,404)**
Public Health Preparedness and Response	**$1,401,708**	**$1,395,459**	**$800,000**	**($595,459)**
Cross-Cutting Activities and Program Support	**$273,570**	**$257,263**	**$155,000**	**($102,263)**
Budget Authority	$113,570	$112,799	$155,000	$42,201
ACA/PPHF	*$160,000*	*$144,464†*	*$0*	*($144,464)*
Buildings and Facilities	**$10,000**	**$9,932**	**$30,000**	**$20,068**
Total CDC – Budget Authority (BA)	**$6,279,103**	**$6,216,002**	**$5,524,935**	**($691,067)**
Total CDC – BA & PHS Evaluation Transfer	**$6,279,103**	**$6,216,002**	**$5,660,755**	**($555,247)**
CDC Program Level - BA, PHS Eval, PHSSEF & PPHF	**$7,185,403**	**$7,020,756**	**$5,660,755**	**($1,360,001)**
Agency for Toxic Substances and Disease Registry	$74,549	$74,184	$62,000	($12,184)
Prevention and Public Health Fund (PPHF) Transfer	$891,300	$804,755†	$0	($804,755)
Public Health and Social Services Emergency Fund (PHSSEF)	$15,000	$0	$0	$0
PHS Evaluation Transfers	$0	$0	$135,820	$135,820
Energy Employees Occupational Illness Compensation Program Act (EEOICPA)	$50,320	$55,358	$0	($55,358)
World Trade Center (Mandatory)[3]	$350,792	$420,016	$469,179	$49,163
Vaccines for Children[4]	$4,436,935	$4,400,908	$4,726,461	$325,553
Other User Fees	$2,226	$2,226	$2,226	$0
Opioids Allocation	N/A	N/A	$175,000	$175,000
Total CDC/ATSDR	**$12,100,226**	**$11,973,448**	**$11,095,621**	**($877,827)**

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

[1] FY 2017 Final and FY 2018 Annualized CR level *Emerging and Zoonotic Infectious Diseases* and *Public Health Scientific Services* amounts are comparably adjusted to reflect $8 million movement of Lab Safety and Quality funding.

[2] FY 2017 totals include funding for Flint, Michigan response, which includes $15 million for Lead Prevention (available through FY 2018) and $20 million for a Lead Exposure Registry and Advisory Council (available through FY 2020).

[3] Reflects Federal share estimated obligations only; NYC share estimated obligations are not included.

[4] FY 2017-2019 estimates reflect anticipated transfers from Medicaid.

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BUDGET EXHIBITS

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APPROPRIATIONS LANGUAGE

CENTERS FOR DISEASE CONTROL AND PREVENTION

IMMUNIZATION AND RESPIRATORY DISEASES

For carrying out titles II, III, XVII, and XXI, and section 2821 of the PHS Act, titles II and IV of the Immigration and Nationality Act, and section 501 of the Refugee Education Assistance Act, with respect to immunization and respiratory diseases, $700,828,000.

HIV/AIDS, VIRAL HEPATITIS, SEXUALLY TRANSMITTED DISEASES, AND TUBERCULOSIS PREVENTION

For carrying out titles II, III, XVII, and XXIII of the PHS Act with respect to HIV/AIDS, viral hepatitis, sexually transmitted diseases, and tuberculosis prevention, $1,117,278,000.

EMERGING AND ZOONOTIC INFECTIOUS DISEASES

For carrying out titles II, III, and XVII, and section 2821 of the PHS Act, titles II and IV of the Immigration and Nationality Act, and section 501 of the Refugee Education Assistance Act, with respect to emerging and zoonotic infectious diseases, $508,328,000: *Provided, That of the amounts available to pay for the transportation, medical care, treatment, and other related costs of persons quarantined or isolated under federal or state quarantine law, up to $1,000,000 shall remain available until expended.*

CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

For carrying out titles II, III, XI, XV, XVII, and XIX of the PHS Act with respect to chronic disease prevention and health promotion, $939,250,000: Provided, That amounts provided under this heading are available for the Director of the Centers for Disease Control and Prevention (CDC) to administer a program, to be known as America's Health State Block Grant, to provide increased flexibility for States, territories, tribes, and tribal organizations to improve public health: Provided further, That for purposes of carrying out this program, the Director is hereby authorized to award grants to States, territories, tribes, and tribal organizations, and such grant awards shall be provided through a formula, as determined by the Director, that takes into account the population and disease burden of the grantee: Provided further, That the Director may set aside not more than 15 percent of the amounts awarded for grants described in the previous proviso for the same purposes, on a competitive basis, to cities, Federally-recognized tribes, and public health entities serving rural and frontier areas or other entities: Provided further, That funds appropriated under this heading may be used for making grants under section 1509 of the PHS Act for not less than 21 States, tribes, or tribal organizations: Provided further, That the proportional funding requirements under section 1503(a) of the PHS Act shall not apply to funds made available under this heading.

BIRTH DEFECTS, DEVELOPMENTAL DISABILITIES, DISABILITIES AND HEALTH

For carrying out titles II, III, XI, and XVII of the PHS Act with respect to birth defects, developmental disabilities, disabilities and health, $110,000,000.

PUBLIC HEALTH SCIENTIFIC SERVICES

For carrying out titles II, III, and XVII of the PHS Act with respect to health statistics, surveillance, health informatics, and workforce development, $332,180,000: Provided, That in addition to amounts provided herein, $135,820,000 shall be available from amounts available under section 241 of the PHS Act to carry out the Public Health Scientific Services.

ENVIRONMENTAL HEALTH

For carrying out titles II, III, and XVII of the PHS Act with respect to environmental health, $157,000,000.

INJURY PREVENTION AND CONTROL

For carrying out titles II, III, and XVII of the PHS Act with respect to injury prevention and control, $266,309,000.

GLOBAL HEALTH

For carrying out titles II, III, and XVII of the PHS Act with respect to global health, $408,762,000, of which $69,547,000 for international HIV/AIDS shall remain available through September 30, 2020, and $58,762,000 for global public health protection shall remain available through September 30, 2020: Provided, That funds may be used for purchase and insurance of official motor vehicles in foreign countries.

PUBLIC HEALTH PREPAREDNESS AND RESPONSE

For carrying out titles II, III, and XVII of the PHS Act with respect to public health preparedness and response, and for expenses necessary to support activities related to countering potential biological, nuclear, radiological, and chemical threats to civilian populations, $800,000,000: Provided, That the Director of the CDC or the Administrator of the Agency for Toxic Substances and Disease Registry may detail staff without reimbursement for up to 180 days to support an activation of the CDC Emergency Operations Center.

BUILDINGS AND FACILITIES

For acquisition of real property, equipment, construction, demolition, and renovation of facilities, $30,000,000 to remain available until September 30, 2023.

CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT

For carrying out titles II, III, XVII and XIX, and section 2821 of the PHS Act and for cross-cutting activities and program support for activities funded in other appropriations included in this Act for the Centers for Disease Control and Prevention, $155,000,000, of which $50,000,000, to *remain available until expended, shall be transferred to the Working Capital Fund authorized under this heading in division F of Public Law 112-74: Provided, That paragraphs (1) through (3) of subsection (b) of section 2821 of the PHS Act shall not apply to funds appropriated under this heading and in all other accounts of the CDC: Provided further, That funds appropriated under this heading and in all other accounts of CDC may be used to support the purchase, hire, maintenance, and operation of aircraft for use and support of the activities of CDC: Provided further, That employees of CDC or the Public Health Service, both civilian and commissioned officers, detailed to States, municipalities, or other organizations under authority of section 214 of the PHS Act, or in overseas assignments, shall be treated as non-Federal employees for reporting purposes only and shall not be included within any*

personnel ceiling applicable to the Agency, Service, or HHS during the period of detail or assignment: Provided further, That CDC may use up to $10,000 from amounts appropriated to CDC in this Act for official reception and representation expenses when specifically approved by the Director of CDC: Provided further, That in addition, such sums as may be derived from authorized user fees, which shall be credited to the appropriation charged with the cost thereof: Provided further, That with respect to the previous proviso, authorized user fees from the Vessel Sanitation Program and the Respirator Certification Program shall be available through September 30, 2020: Provided further, That the Director may transfer discretionary funds (pursuant to the Balanced Budget and Emergency Deficit Control Act of 1985) which are appropriated for the current fiscal year for CDC in this Act between any of the accounts of CDC with notification to the Committees on Appropriations of both Houses of Congress at least 15 days in advance of any transfer, but no such account shall be decreased by more than 3 percent by any such transfer.

CDC-RELATED HHS GENERAL PROVISIONS

Sec. 210. In order for HHS to carry out international health activities, including HIV/AIDS and other infectious disease, chronic and environmental disease, and other health activities abroad during fiscal year 2019:

(1) The Secretary may exercise authority equivalent to that available to the Secretary of State in section 2(c) of the State Department Basic Authorities Act of 1956. The Secretary shall consult with the Secretary of State and relevant Chief of Mission to ensure that the authority provided in this section is exercised in a manner consistent with section 207 of the Foreign Service Act of 1980 and other applicable statutes administered by the Department of State.

(2) The Secretary is authorized to provide such funds by advance or reimbursement to the Secretary of State as may be necessary to pay the costs of acquisition, lease, alteration, renovation, and management of facilities outside of the United States for the use of HHS. The Department of State shall cooperate fully with the Secretary to ensure that HHS has secure, safe, functional facilities that comply with applicable regulation governing location, setback, and other facilities requirements and serve the purposes established by this Act. The Secretary is authorized, in consultation with the Secretary of State, through grant or cooperative agreement, to make available to public or nonprofit private institutions or agencies in participating foreign countries, funds to acquire, lease, alter, or renovate facilities in those countries as necessary to conduct programs of assistance for international health activities, including activities relating to HIV/AIDS and other infectious diseases, chronic and environmental diseases, and other health activities abroad.

(*3)* The Secretary is authorized to provide to personnel appointed or assigned by the Secretary to serve abroad, allowances and benefits similar to those provided under chapter 9 of title I of the Foreign Service Act of 1980, and 22 U.S.C. 4081 through 4086 and subject to such regulations prescribed by the Secretary. The Secretary is further authorized to provide locality-based comparability payments (stated as a percentage) up to the amount of the locality-based comparability payment (stated as a percentage) that would be payable to such personnel under section 5304 of title 5, United States Code if such personnel's official duty station were in the District of Columbia. Leaves of absence for personnel under this subsection shall be on the same basis as that provided under subchapter I of chapter 63 of title 5, United States Code, or section 903 of the Foreign Service Act of 1980, to individuals serving in the Foreign Service.

Sec. 223. Funds available to the Secretary under this or any prior Act that are available for acquisition of real property or for construction or improvement of facilities shall also be available to make transportation and infrastructure related improvements on property located directly adjacent to property owned by the Federal Government, provided that the primary benefit of such improvements accrues to HHS or the component thereof funding the improvements.

Sec. 225. Funds appropriated in this or any prior Act or the Patient Protection and Affordable Care Act that are available for salaries and expenses of employees of the Department of Health and Human Services shall also be available for the primary and secondary schooling of eligible dependents of HHS personnel stationed in the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, and the possessions of the United States at costs not in excess of those paid for or reimbursed by the Department of Defense.

Sec. 226. Funds appropriated in this or any prior Act or the Patient Protection and Affordable Care Act that are available for salaries and expenses of employees of the Department of Health and Human Services shall also be available to pay travel and related expenses of such an employee or of a member of his or her family, when such employee is assigned to duty, in the United States or in a U.S. territory, during a period and in a location that are the subject of a determination of a public health emergency under section 319 of the Public Health Service Act and such travel is necessary to obtain medical care for an illness, injury, or medical condition that cannot be adequately addressed in that location at that time. For the purposes of this section, the term “U.S. territory” means Guam, the Commonwealth of Puerto Rico, the Northern Mariana Islands, the Virgin Islands, American Samoa, or the Trust Territory of the Pacific Islands.

APPROPRIATIONS LANGUAGE ANALYSIS

Language Provision	Explanation
IMMUNIZATION AND RESPIRATORY DIESASES	
For carrying out titles II, III, XVII, and XXI, and section 2821 of the PHS Act, titles II and IV of the Immigration and Nationality Act, and section 501 of the Refugee Education Assistance Act, with respect to immunization and respiratory diseases, $700,828,000.	Appropriates funding to support activities related to immunization and respiratory diseases. This level reflects the shift from supporting these activities using mandatory Prevention and Public Health Fund resources.
HIV/AIDS, VIRAL HEPATITIS, SEXUALLY-TRANSMITTED INFECTIONS, AND TUBERCULOSIS	
For carrying out titles II, III, XVII, and XXIII of the PHS Act with respect to HIV/AIDS, viral hepatitis, sexually transmitted diseases, and tuberculosis prevention, $1,117,278,000.	Appropriates funding to support activities related to HIV/AIDS, viral hepatitis, sexually transmitted diseases, and tuberculosis prevention.
EMERGING AND ZOONOTIC INFECTIOUS DISEASES	
For carrying out titles II, III, and XVII, and section 2821 of the PHS Act, titles II and IV of the Immigration and Nationality Act, and section 501 of the Refugee Education Assistance Act, with respect to emerging and zoonotic infectious diseases, $508,328,000:	Appropriates funding for activities related to emerging and zoonotic infectious diseases. This level reflects the shift from supporting these activities using mandatory Prevention and Public Health Fund resources.
Provided, That of the amounts available to pay for the transportation, medical care, treatment, and other related costs of persons quarantined or isolated under federal or state quarantine law, up to $1,000,000 shall remain available until expended.	The availability of $1,000,000, as an initial set-aside, until expended, will ensure resources to address state and local expenditures for federal isolation orders. To ensure prompt and effective isolation when necessary, CDC has Memorandums of Agreement with 182 hospitals for transportation, evaluation, diagnosis, care, and treatment of travelers who pose a significant risk to public health. Cases are extremely variable in terms of frequency and cost (from $2,000 to over $500,000 per case).
CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION	
For carrying out titles II, III, XI, XV, XVII, and XIX of the PHS Act with respect to chronic disease prevention and health promotion, $939,250,000:	Appropriates funding for activities related to chronic disease prevention and health promotion. This level reflects the shift from supporting these activities using mandatory Prevention and Public Health Fund resources.
Provided, That amounts provided under this heading are available for the Director of the Centers for Disease Control and Prevention (CDC) to administer a	For the new block grant, America's Health. This Block Grant will provide flexibility to grantees and focus on

Language Provision	Explanation
program, to be known as America's Health State Block Grant, to provide increased flexibility for States, territories, tribes, and tribal organizations to improve public health: Provided further, That for purposes of carrying out this program, the Director is hereby authorized to award grants to States, territories, tribes, and tribal organizations, and such grant awards shall be provided through a formula, as determined by the Director, that takes into account the population and disease burden of the grantee: Provided further, That the Director may set aside not more than 15 percent of the amounts awarded for grants described in the previous proviso for the same purposes, on a competitive basis, to cities, Federally-recognized tribes, and public health entities serving rural and frontier areas or other entities:	the top public health challenges faced by states, tribes, localities, and territories.
Provided further, That funds appropriated under this heading may be used for making grants under section 1509 of the PHS Act for not less than 21 States, tribes, or tribal organizations: Provided further, That the proportional funding requirements under section 1503(a) of the PHS Act shall not apply to funds made available under this heading.	Creates a permissive override of limits in the authorization on the number of States that can receive funds for a WISEWOMAN program.
BIRTH DEFECTS AND DEVELOPMENTAL DISABILITIES	
For carrying out titles II, III, XI, and XVII of the PHS Act with respect to birth defects, developmental disabilities, disabilities and health, $110,000,000.	Appropriates funding for activities related to birth defects, developmental disabilities, and disabilities and health.
PUBLIC HEALTH SCIENTIFIC SERVICES	
For carrying out titles II, III, and XVII of the PHS Act with respect to health statistics, surveillance, health informatics, and workforce development, $332,180,000:	Appropriates funding for public health scientific services.
Provided, That in addition to amounts provided herein, $135,820,000 shall be available from amounts available under section 241 of the PHS Act to carry out the Public Health Scientific Services.	Language reflects PHS Evaluation transfer to Public Health Scientific Services.
ENVIRONMENTAL HEALTH	
For carrying out titles II, III, and XVII of the PHS Act with respect to environmental health, $157,000,000.	Appropriates funding for activities related to environmental health.

Language Provision	Explanation
INJURY PREVENTION AND CONTROL	
For carrying out titles II, III, and XVII of the PHS Act with respect to injury prevention and control, $266,309,000.	Appropriates funding to activities related to injury prevention and control.
GLOBAL HEALTH	
For carrying out titles II, III, and XVII of the PHS Act with respect to global health, $408,762,000,	Appropriates funding to activities related to global health.
of which $69,547,000 for international HIV/AIDS shall remain available through September 30, 2020,	Specifies an amount of funding available through the end of FY 2020 to support activities related to international HIV/AIDS.
and $58,762,000 for global public health protection shall remain available through September 30, 2020:	Specifies an amount of funding available through the end of FY 2020 to support activities under the Global Health Security Agenda. Multi-year funding will strengthen capacity for preparedness, prevention, detection, and response and will help to mitigate emergency funding requests for unpredictably timed emergencies and outbreaks.
Provided, That funds may be used for purchase and insurance of official motor vehicles in foreign countries.	Permits the funds appropriated in this provision to be used for insuring official motor vehicles in foreign countries.
PUBLIC HEALTH PREPAREDNESS AND RESPONSE	
For carrying out titles II, III, and XVII of the PHS Act with respect to public health preparedness and response, and for expenses necessary to support activities related to countering potential biological, nuclear, radiological, and chemical threats to civilian populations, $800,000,000;	Appropriates funding to support activities related to public health preparedness and response.
Provided, That the Director of the CDC or the Administrator of the Agency for Toxic Substances and Disease Registry may detail staff without reimbursement for up to 180 days to support an activation of the CDC Emergency Operations Center.	To best direct resources to States with the greatest need during an activation of the Emergency Operations Center, CDC requests authority to deploy or otherwise utilize CDC staff to support emergency responses, regardless of appropriation line from which those staff are resourced. There will be a time limit of 180 days per employee to work on the emergency.
BUILDINGS AND FACILITIES	

Language Provision	Explanation
For acquisition of real property, equipment, construction, demolition, and renovation of facilities, $30,000,000 to remain available until September 30, 2023.	Appropriates funding to support buildings and facilities, specifying availability through the end of FY 2023.
CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT	
For carrying out titles II, III, XVII and XIX, and section 2821 of the PHS Act and for cross-cutting activities and program support for activities funded in other appropriations included in this Act for the Centers for Disease Control and Prevention, $155,000,000,	Appropriates funding to support CDC-wide activities and program support.
of which $50,000,000, to remain available until expended, shall be transferred to the Working Capital Fund authorized under this heading in division F of Public Law 112-74*:*	Appropriates funding for a one-time investment to fill critical gaps in business services that support CDC's research and programmatic activities. These funds will be deposited into the Working Capital Fund reserve.
Provided, That paragraphs (1) through (3) of subsection (b) of section 2821 of the PHS Act shall not apply to funds appropriated under this heading and in all other accounts of the CDC: Provided further, That funds appropriated under this heading and in all other accounts of CDC may be used to support the purchase, hire, maintenance, and operation of aircraft for use and support of the activities of CDC:	CDC must maintain the ability to purchase or hire aircraft for deployment of emergency response operations; testing of new insecticides and formulations; and for applying the insecticides when outbreaks of mosquito-borne disease, such as encephalitis, occur in populous areas where no other method can be used to control the spread of the disease.
Provided further, That employees of CDC or the Public Health Service, both civilian and commissioned officers, detailed to States, municipalities, or other organizations under authority of section 214 of the PHS Act, or in overseas assignments, shall be treated as non-Federal employees for reporting purposes only and shall not be included within any personnel ceiling applicable to the Agency, Service, or HHS during the period of detail or assignment:	CDC and PHS employees are to be treated as non-Federal employees for reporting purposes and are not included within any personnel ceiling.
Provided further, That CDC may use up to $10,000 from amounts appropriated to CDC in this Act for official reception and representation expenses when specifically approved by the Director of CDC: Provided further, That in addition, such sums as may be derived from authorized user fees, which shall be credited to the appropriation charged with the cost thereof:	Specifies $10,000 of funds appropriated to CDC for official reception and representation expenses approved by the CDC Director
Provided further, That with respect to the previous proviso, authorized user fees from the Vessel Sanitation Program and the Respirator Certification	Indicates that user fees are credited to the CDC appropriation account.

Language Provision	Explanation
Program shall be available through September 30, 2020:	
Provided further, That the Director may transfer discretionary funds (pursuant to the Balanced Budget and Emergency Deficit Control Act of 1985) which are appropriated for the current fiscal year for CDC in this Act between any of the accounts of CDC with notification to the Committees on Appropriations of both Houses of Congress at least 15 days in advance of any transfer, but no such account shall be decreased by more than 3 percent by any such transfer.	In limited circumstances, CDC requests this transfer in order to improve the provision of services and activities between accounts following Congressional notification. When immediate health threats either domestically or internationally arise, this authority will give CDC the necessary resources and flexibility from across the agency to provide the timeliest response.
CDC-RELATED GENERAL PROVISIONS	
Sec. 210. In order for HHS to carry out international health activities, including HIV/AIDS and other infectious disease, chronic and environmental disease, and other health activities abroad during fiscal year 2019: (1)The Secretary may exercise authority equivalent to that available to the Secretary of State in section 2(c) of the State Department Basic Authorities Act of 1956. The Secretary shall consult with the Secretary of State and relevant Chief of Mission to ensure that the authority provided in this section is exercised in a manner consistent with section 207 of the Foreign Service Act of 1980 and other applicable statutes administered by the Department of State. (2)The Secretary is authorized to provide such funds by advance or reimbursement to the Secretary of State as may be necessary to pay the costs of acquisition, lease, alteration, renovation, and management of facilities outside of the United States for the use of HHS. The Department of State shall cooperate fully with the Secretary to ensure that HHS has secure, safe, functional facilities that comply with applicable regulation governing location, setback, and other facilities requirements and serve the purposes established by this Act. The Secretary is authorized, in consultation with the Secretary of State, through grant or cooperative agreement, to make available to public or nonprofit private institutions or agencies in participating foreign countries, funds to acquire, lease, alter, or renovate facilities in those countries as necessary to conduct	The date change updates a FY 2016 provision so that it applies in FY 2019.

Language Provision	Explanation
programs of assistance for international health activities, including activities relating to HIV/AIDS and other infectious diseases, chronic and environmental diseases, and other health activities abroad. (3) The Secretary is authorized to provide to personnel appointed or assigned by the Secretary to serve abroad, allowances and benefits similar to those provided under chapter 9 of title I of the Foreign Service Act of 1980, and 22 U.S.C. 4081 through 4086 and subject to such regulations prescribed by the Secretary. The Secretary is further authorized to provide locality-based comparability payments (stated as a percentage) up to the amount of the locality-based comparability payment (stated as a percentage) that would be payable to such personnel under section 5304 of title 5, United States Code if such personnel's official duty station were in the District of Columbia. Leaves of absence for personnel under this subsection shall be on the same basis as that provided under subchapter I of chapter 63 of title 5, United States Code, or section 903 of the Foreign Service Act of 1980, to individuals serving in the Foreign Service.	
Sec. 223. Funds available to the Secretary under this or any prior Act that are available for acquisition of real property or for construction or improvement of facilities shall also be available to make transportation and infrastructure related improvements on property located directly adjacent to property owned by the Federal Government, provided that the primary benefit of such improvements accrues to HHS or the component thereof funding the improvements.	CDC needs this authority to construct roadway improvements for safe access to construction projects benefiting CDC programs. This provision may also be relevant to other HHS OpDivs.
Sec. 225. Funds appropriated in this or any prior Act or the Patient Protection and Affordable Care Act that are available for salaries and expenses of employees of the Department of Health and Human Services shall also be available for the primary and secondary schooling of eligible dependents of HHS personnel stationed in the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, and the possessions of the United States at costs not in excess of those paid for or reimbursed by the Department of Defense.	This language would allow CDC to reimburse private schools for tuition costs for dependents of CDC employees. Currently, CDC's Dengue Branch has an Interagency Agreement with Department of Defense to send dependents to the base school. This is costly, and also does not provide bilingual instruction at the level needed for families that plan to stay in Puerto Rico long-term. This language would allow CDC to provide that benefit to civilian employees, and would save money when compared to DOD schools.

Language Provision	Explanation
	This provision may also be relevant to other HHS OpDivs.
Sec. 226. Funds appropriated in this or any prior Act or the Patient Protection and Affordable Care Act that are available for salaries and expenses of employees of the Department of Health and Human Services shall also be available to pay travel and related expenses of such an employee or of a member of his or her family, when such employee is assigned to duty, in the United States or in a U.S. territory, during a period and in a location that are the subject of a determination of a public health emergency under section 319 of the Public Health Service Act and such travel is necessary to obtain medical care for an illness, injury, or medical condition that cannot be adequately addressed in that location at that time. For the purposes of this section, the term "U.S. territory" means Guam, the Commonwealth of Puerto Rico, the Northern Mariana Islands, the Virgin Islands, American Samoa, or the Trust Territory of the Pacific Islands.	This provision would allow CDC to Medivac its employees or their family members for medical care under certain circumstances, if needed. This provision may also be relevant to other HHS OpDivs.

AMOUNTS AVAILABLE FOR OBLIGATION [1,2,3]

	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Discretionary Appropriation:			
Enacted	$6,258,503,000	$6,258,503,000	$5,524,935,000
Flint Response and Lead Poisoning Prevention (PL 114-254)	$35,000,000	N/A	N/A
Permissive Transfer	($14,400,000)	$0	$0
Reprogramming	$0	$0	$0
ATB Rescission	N/A	($42,501,000)	N/A
Subtotal, adjusted Appropriation	**$6,279,103,000**	**$6,216,002,000**	**$5,524,935,000**
Mandatory and Other Appropriations:			
Transfers from Other Accounts[4]	$891,300,000	$804,755,000†	$0
Receipts from User Fees	$2,226,000	$2,226,000	$2,226,000
Receipts from CRADA[5]	$640,800	$640,800	$640,800
Receipts from Royalties[5]	$922,711	$922,711	$922,711
Appropriation (EEOICPA)	$50,320,000	$50,320,000	$0
Subtotal, adjusted Mandatory and Other Appropriations	**$945,409,511**	**$858,864,511**	**$3,789,511**
Recovery of prior year Obligations	$34,866,546	$0	$0
Unobligated balance start of year	$177,928,653	$242,981,327	$239,078,501
Unobligated balance expiring	$4,761,198	$0	$0
Unobligated balance end of year	($242,981,327)	($239,078,501)	($188,437,602)
Total Obligations	**$7,199,087,581**	**$7,078,769,337**	**$5,579,365,410**

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

[1] Excludes Vaccine for Children, World Trade Center Health Program, Ebola Preparedness and Response, and Zika Preparedness and Response funds.

[2] Excludes the following amount for reimbursements: FY 2017 $412.109M.

[3] FY 2017 totals include funding for Flint, Michigan response, which includes $15 million for Lead Prevention (available through FY 2018) and $20 million for a Lead Exposure Registry and Advisory Council (available through FY2020).

[4] Reflects transfer from Prevention and Public Health Fund (PPHF).

[5] FY 2017 amount represents actual collections. FY 2018 and FY 2019 amounts are estimates assuming level receipts. FY 2018 and FY 2019 actuals may vary.

SUMMARY OF CHANGES

	Dollars	FTEs
FY 2018 Annualized CR (Program Level)	**$7,020,756**	**10,879**
FY 2019 President's Budget (Program Level)	**$5,660,755**	**9,685**
Net Change	**($1,360,001)**	**(1,194)**

(dollars in thousands)	FY 2018 FTE	FY 2018 Annualized CR	FTE Change	FY 2019 +/- FY 2018
Increases:				
Immunization and Respiratory Diseases				
Influenza	---	$171,386	---	$8,614
HIV/AIDS, Viral Hepatitis, STI and TB Prevention				
Elimination Initiative	---	N/A	---	$40,000
Emerging and Zoonotic Infectious Diseases				
Vector-borne Diseases[1]	---	$36,858	---	$12,601
Emerging Infectious Diseases[2,3]	---	$175,639	---	$9,658
Chronic Disease Prevention and Health Promotion				
America's Health Block Grant (PPHF)	---	N/A	---	$500,000
Birth Defects, Developmental Disabilities, Disability and Health				
Surveillance for Emerging Threats to Mothers and Babies	---	N/A	---	$10,000
Environmental Health				
Childhood Lead Poisoning Prevention	---	$15,349	---	$1,651
Global Health				
Global Disease Detection and Other Programs	---	$57,805	---	$50,957
Public Health Preparedness and Response				
Public Health Emergency Preparedness Cooperative Agreement	---	$655,518	---	$4,482
Cross-Cutting Activities and Program Support				
Business Services Support	---	N/A	---	$50,000
Buildings and Facilities		$9,932	---	$20,068
All Other Increases		**N/A**		**$5,420**
Total Increases	**N/A**	**$1,314,420**	**N/A**	**$713,451**
Decreases:				
Immunization and Respiratory Diseases				
Immunization Program Level	---	$573,380	---	($52,552)
HIV/AIDS, Viral Hepatitis, STI and TB Prevention				
Domestic HIV/AIDS Prevention and Research	---	$783,356	---	($34,644)
Emerging and Zoonotic Infectious Diseases				
Antibiotic Resistance	---	$161,893	---	($24,893)
Prion Disease	---	$5,959	---	($5,959)
Chronic Fatigue Syndrome	---	$5,363	---	($5,363)
Epi and Lab Capacity Program (PPHF)[2]	---	$36,116	---	N/A
Healthcare-Associated Infections (PPHF)	---	$10,835	---	N/A
Chronic Disease Prevention and Health Promotion				
Other State-Based Chronic Disease Programs[4]	---	$507,972	---	N/A
REACH (PPHF)	---	$46,003	---	($46,003)
Prevention Research Centers	---	$25,288	---	($25,288)
Other Chronic Disease Prevention	---	$28,331	---	($24,838)
Cancer Prevention and Control	---	$354,252	---	($16,828)
Hospitals Promoting Breastfeeding (PPHF)	---	$7,223	---	($7,223)
Million Hearts (PPHF)	---	$3,612	---	($3,612)
Let's Move/National Early Child Care Collaboratives (PPHF)	---	$3,612	---	($3,612)
National Diabetes Prevention Program	---	$22,347	---	($2,385)
Birth Defects, Developmental Disabilities, Disability and Health	---	$136,626	---	($36,626)

Environmental Health				
Amyotrophic Lateral Sclerosis Registry (ALS)	---	$9,932	---	($9,932)
Climate Change	---	$9,932	---	($9,932)
Environmental and Health Outcome Tracking Network	---	$33,769	---	($8,769)
Asthma	---	$28,803	---	($3,803)
Injury Prevention and Control				
Injury Control Research Centers	---	$8,983	---	($8,939)
Injury Prevention Activities	---	$28,753	---	($8,460)
Elderly Falls	---	$2,036	---	($2,036)
Public Health Scientific Services				
Surveillance, Epidemiology, and PH Informatics	---	$285,051	---	($17,051)
Public Health Workforce and Career Development	---	$49,660	---	($4,660)
Health Statistics	---	$159,308	---	($4,308)
Occupational Safety and Health				
Occupational Safety and Health Research	---	$332,924	---	($332,924)
Global Health				
Global HIV/AIDS Program	---	$127,549	---	($58,002)
Global Immunization Program	---	$222,479	---	($16,479)
Public Health Preparedness and Response				
Strategic National Stockpile	---	$571,095	---	($571,095)
CDC Preparedness and Response Capability	---	$160,701	---	($20,701)
Academic Centers for Public Health Preparedness	---	$8,184	---	($8,144)
Cross-Cutting Activities and Program Support	---		---	
Preventive Health and Health Services Block Grant (PPHF)	---	$144,464	---	($144,464)
Public Health Leadership and Support		$112,799		($7,799)
Total Decreases	N/A	**$5,681,902**	**N/A**	**($2,083,125)**
Transfers				
	---	$0	---	$0
Built-In:				
1. Annualization of Jan - 2018 Pay Raise	---	---	---	$0
2. FY 2019 Pay Increases	---	---	---	$0
3. Changes in Day of Pay	---	---	---	$0
4. Rental Payments to GSA and Others	---	---	---	$0
Total Built-In		$0		$0
Absorption of Current Services				$0
Total				$0
Total Increases (Program Level)		**$1,969,938**	0	**$723,124**
Total Decreases (Program Level)		**$5,026,384**	0	**($2,083,125)**
NET CHANGE - L/HHS/ED Program Level	**10,879**	**$7,020,756**	**(1,194)**	**($1,360,001)**

Other Program Level Changes				
1. Vaccines for Children	---	$4,400,908	---	$325,553
2. World Trade Center[5]	---	$420,016	---	$49,163
3. Opioids Allocation	---	N/A	---	$175,000
4. Energy Employees Occupational Illness Compensation Act (EEOICPA)	---	$55,358	---	($55,358)
4. User Fees	---	$2,226	---	$0
Total - Other Program Level Net Increase	**10,879**	**$4,878,508**	**(1,194)**	**$494,358**
NET CHANGE: CDC BUDGET AUTHORITY & PROGRAM LEVEL	**10,879**	**$11,899,264**	**(1,194)**	**($865,643)**

[1] FY 2018 and FY 2019 totals for Vector-Borne Diseases include Lyme Disease.
[2] In FY 2018 and FY 2019, the Epidemiology and Laboratory Capacity program will be supported by funding for Emerging Infectious Diseases under NCEZID.
[3] FY 2018 and FY 2019 totals for Emerging Infectious Diseases include All Other Infectious Diseases
[4] FY 2018 totals reflect funding for: Tobacco Prevention and Control; Nutrition, Physical Activity, and Obesity; Heart Disease and Stroke; Diabetes; and Arthritis. In FY 2019, these activities will be allowable uses under the newly-established America's Health Block Grant.
[5] Reflects Federal share estimated obligations only; NYC share estimated obligations are not included.

BUDGET AUTHORITY BY ACTIVITY

(dollars in thousands) Budget Activity/Description	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Immunization and Respiratory Diseases	$453,924	$451,910	$700,828
HIV/AIDS, Viral Hepatitis, STI and TB Prevention	$1,114,652	$1,109,691	$1,117,278
Emerging and Zoonotic Infectious Diseases	$523,704	$521,357	$508,328
Chronic Disease Prevention and Health Promotion	$775,682	$772,365	$939,250
Birth Defects, Developmental Disabilities, Disability and Health	$137,242	$136,626	$110,000
Environmental Health[1]	$198,363	$162,638	$157,000
Injury Prevention and Control	$285,506	$284,116	$266,309
Public Health Scientific Services	$496,226	$494,019	$332,180
Occupational Safety and Health	$334,405	$332,924	$0
Global Health	$434,120	$432,166	$408,762
Public Health Preparedness and Response	$1,401,708	$1,395,459	$800,000
Cross-Cutting Activities and Program Support	$113,570	$112,799	$155,000
Buildings and Facilities	$10,000	$9,932	$30,000
Total CDC, Budget Authority -	**$6,279,103**	**$6,216,002**	**$5,524,935**
Total CDC, FTEs[2]	**11,519**	**10,879**	**9,685**

[1] FY 2017 totals include funding for Flint, Michigan response, which includes $15 million for Lead Prevention (available through FY 2018) and $20 million for a Lead Exposure Registry and Advisory Council (available through FY 2020).

[2] FTE displayed reflect updated estimated levels for FY 2017, FY 2018, and FY 2019.

AUTHORIZING LEGISLATION

(dollars in thousands) Enabling Legislation Citation[1]	Enabling Legislation Status	Allocation Methods	FY 2018 Annualized CR	FY 2019 President's Budget
Immunization and Respiratory Diseases				
PHSA Title II § 2102(a)(6) and (a)(7), Social Security Act § 1928 (42 U.S.C. 1396s), PHSA Title II § 2821,* PHSA Title II § 317,* PHSA Title II § 317N,* PHSA Title II § 317S,* PHSA Title II § 319C, PHSA Title II § 319E,* PHSA Title II § 319F, Immigration and Nationality Act § 212 (8 U.S.C. 1182), Immigration and Nationality Act § 232 (8 U.S.C. 1222, 1252), PHSA Title II § 2125, PHSA Title II § 2126, PHSA Title II § 2127, PHSA Title II § 301, PHSA Title II § 307, PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 319, PHSA Title II § 322, PHSA Title II § 325, PHSA Title II § 327, PHSA Title II § 340C, PHSA Title II § 352	Permanent Indefinite	Direct Federal/Intramural; Competitive Cooperative Agreements/Grants, including Formula Grants; Contracts; and Other	$744,766	$700,828
HIV/AIDS, Viral Hepatitis, STD, and TB Prevention				
PHSA Title II § 306(n),* PHSA Title II § 317N(c),* PHSA Title II § 318(e),* Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act for FY 1995 (Title II of P.L. 103-333), PHSA Title II § 317,* PHSA Title II § 318B,* PHSA Title XVII § 2315, PHSA Title XVII § 2320, PHSA Title XVII § 2341, PHSA Title II § 301, PHSA Title II § 306(a-l), PHSA Title II § 307, PHSA Title II § 308(d), PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 317E(a-f), PHSA Title II § 317E(g), PHSA Title II § 317N(a-b), PHSA Title II § 317P(a-c), PHSA Title II § 318(a-d),* PHSA Title II § 318(f),* PHSA Title II § 322, PHSA Title II § 325, PHSA Title II § 327, PHSA Title II § 352	Permanent Indefinite	Direct Federal/Intramural, Competitive Grant/Cooperative Agreements, Formula Grants/Cooperative Agreements, Contracts, and Other	$1,109,691	$1,117,278
Emerging and Zoonotic Infectious Diseases				
PHSA Title II § 317,* PHSA Title II § 317P,* PHSA Title II § 317R,* PHSA Title II § 317S,* PHSA Title II § 319D, PHSA Title II § 319E,* PHSA Title II § 319F, PHSA Title II § 319G,* PHSA Title XVII § 2821,* Bayh-Dole Act of 1980 (P.L. 96-517), PHSA Title II § 1102, PHSA Title II § 301, PHSA Title II § 304, PHSA Title II § 307, PHSA Title II § 308(d), PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 319, PHSA Title II § 321, PHSA Title II § 322, PHSA Title II § 325, PHSA Title II § 327, PHSA Title II § 352, PHSA Title II § 353, PHSA Title II § 361-369	Permanent Indefinite	Direct Federal/Intramural, Contracts, and Competitive Grants/Cooperative Agreements	$568,308	$508,328
Chronic Disease Prevention and Health Promotion				

(dollars in thousands) Enabling Legislation Citation[1]	Enabling Legislation Status	Allocation Methods	FY 2018 Annualized CR	FY 2019 President's Budget
PHSA Title II § 1501–1509,* PHSA Title II § 317,* PHSA Title II § 317D,* PHSA Title II § 317H,* PHSA Title II § 317K,* PHSA Title II § 317L,* PHSA Title II § 317M,* PHSA Title II § 317P,* PHSA Title II § 330E,* PHSA Title II § 399B*–399E,* PHSA Title II § 399NN, PHSA Title II § 399Q, PHSA Title II § 399V-3,* PHSA Title II § 399W,* PHSA Title II § 399X,* PHSA Title II § 399Y,* PHSA Title II § 399Z,* PHSA Title XVII § 1706,* Comprehensive Smokeless Tobacco Health Education Act of 1986, Comprehensive Smoking Education Act of 1984, Fertility Clinic Success Rate And Certification Act of 1992 (P.L. 102-493), PHSA Title II § 301, PHSA Title II § 307, PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 399V-6	Permanent Indefinite	Direct Federal Intramural; Competitive Cooperative Agreements/Grants, including Formula Grants; and Competitive Contracts	$1,077,500	$939,250
Birth Defects and Developmental Disabilities				
PHSA Title II § 317,* PHSA Title II § 317C(a),* PHSA Title II § 317J,* PHSA Title II § 317K,* PHSA Title II § 317L,* PHSA Title II § 317Q, PHSA Title II § 399AA, PHSA Title II § 399BB, PHSA Title II § 399CC, PHSA Title II § 399M,* PHSA Title II § 399Q, PHSA Title XI, PHSA Title XVII § 1706,* The Prematurity Research Expansion And Education For Mothers Who Deliver Infants Early Act § 3 (42 U.S.C. 247b-4f), PHSA Title II § 1102, PHSA Title II § 1110, PHSA Title II § 1112, PHSA Title II § 1113, PHSA Title II § 1114, PHSA Title II § 301, PHSA Title II § 304, PHSA Title II § 307, PHSA Title II § 308(d), PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 327, PHSA Title II § 352, PHSA Title II § 399S, PHSA Title II § 399T, PHSA Title II § 399V-2	Permanent Indefinite	Direct Federal/Intramural, Competitive Grants, Cooperative Agreements and Contracts	$136,626	$110,000
Environmental Health				
PHSA Title II § 317,* PHSA Title II § 317A,* PHSA Title II § 317I,* PHSA Title XVII § 1706,* PHSA Title II § 1102, PHSA Title II § 301, PHSA Title II § 307, PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 317B, PHSA Title II § 327, PHSA Title II § 352, PHSA Title II § 361, PHSA Title II § 366	Permanent Indefinite	Direct Federal/Intramural, Contracts, Competitive Grants/Cooperative Agreements	$177,987	$157,000
Injury Prevention and Control				
Family Violence Prevention and Services Act § 303,* PHSA Title II § 317,* PHSA Title II § 319D, PHSA Title II § 393A, PHSA Title II § 394A, PHSA Title II § 399P,* PHSA Title XVII § 1706,* Bayh-Dole Act of 1980 (P.L. 96-517), Family Violence Prevention and Services Act § 314,* PHSA Title II § 1102, PHSA Title II § 214, PHSA Title II § 301, PHSA Title II § 304,	Permanent Indefinite	Direct Federal/Intramural; Competitive Cooperative Agreements/Grants, including Formula Grants; and	$284,116	$266,309

(dollars in thousands) Enabling Legislation Citation[1]	Enabling Legislation Status	Allocation Methods	FY 2018 Annualized CR	FY 2019 President's Budget
PHSA Title II § 307, PHSA Title II § 308, PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 319, PHSA Title II § 327, PHSA Title II § 352, PHSA Title II § 391, PHSA Title II § 392, PHSA Title II § 393, PHSA Title II § 393B, PHSA Title II § 393C, PHSA Title II § 393D, PHSA Title II § 394		Competitive Contracts		
Public Health Scientific Services				
PHSA Title II § 306,* Intelligence Reform and Terrorism Prevention Act of 2004 § 7211,* PHSA Title II § 317,* PHSA Title II § 318,* PHSA Title II § 319A, PHSA Title II § 399V,* PHSA Title II § 778,* PHSA Title XVII § 2315, PHSA Title XVII § 2341, Food, Conservation, And Energy Act of 2008 § 4403 (7 U.S.C. 5311a), P.L. 101-445 § 5341, E-Government Act of 2002 P.L. 107-347, PHSA Title II § 1102, PHSA Title II § 241, PHSA Title II § 301, PHSA Title II § 304, PHSA Title II § 307, PHSA Title II § 308, PHSA Title II § 310, PHSA Title II § 317G, PHSA Title II § 319, PHSA Title II § 353, PHSA Title II § 391, PHSA Title XXV § 2521, Title V (44 U.S.C. 3501 note)	Permanent Indefinite	Direct Federal/Intramural, Competitive Grants/Cooperative Agreements, Contracts	$494,019	$468,000
Occupational Safety and Health				
PHSA Title II § 306,* Bureau of Mine Act, as amended by P.L. 104-208, Energy Employees Occupational Illness Compensation Program Act of 2000, James Zadroga 9/11 Health And Compensation Reauthorization Act (2015), Division O, Title Iii, P.L 114-113, Radiation Exposure Compensation Act, §§ 6 and 12, Black Lung Benefits Reform Act of 1977 § 19, P.L. 95-239, Occupational Safety and Health Act of 1970 §§20–22, P.L. 91-596 as amended by P.L. 107-188 and 109-236 (29 U.S.C. 669–671), PHSA Title II § 317,* PHSA Title II § 317A,* Federal Mine Safety and Health Act of 1977, P.L. 91-173 as amended by P.L. 95-164 and P.L. 109-236, PHSA Title II § 1102, PHSA Title II § 301, PHSA Title II § 304, PHSA Title II § 307, PHSA Title II § 308(d), PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 317B, PHSA Title II § 319, PHSA Title II § 327, PHSA Title II § 352, PHSA Title II § 399MM, PHSA Title XVII § 2695, Toxic Substances Control Act, P.L. 94-469 as amended by 102-550	Permanent Indefinite	Direct Federal/Intramural, Competitive Grant/Cooperative Agreements, Contracts, Other	$332,924	$0
Global Health				
Section 212 of the Consolidated Appropriations Act, 2017 (P.L. 115-31, Division H), PEPFAR Stewardship & Oversight Act of 2013 (P.L. 113-56), Foreign Assistance	Permanent Indefinite	Direct Federal/Intramural, Competitive Grants/Cooperative	$432,166	$408,762

(dollars in thousands) Enabling Legislation Citation[1]	Enabling Legislation Status	Allocation Methods	FY 2018 Annualized CR	FY 2019 President's Budget
Act of 1961 § 104, PHSA Title XVII § 2315, PHSA Title XVII § 2341, Tom Lantos and Henry J. Hyde United States Global Leadership Against HIV/AIDS, Tuberculosis, and Malaria Reauthorization Act of 2008 (P.L.110-293),* Federal Employees International Organization Service Act § 3, Foreign Assistance Act of 1961 § 627 and § 628, Foreign Employees Compensation Program, PHSA Title II § 301, PHSA Title II § 304, PHSA Title II § 307, PHSA Title II § 310, PHSA Title II § 319, PHSA Title II § 327, PHSA Title II § 340C, PHSA Title II § 361-369		Agreements, Direct Contracts, Interagency Agreements		
Public Health Preparedness and Response				
PHSA Title II § 319C-1, PHSA Title II § 319D, PHSA Title II § 319F, PHSA Title II § 319F-2, PHSA Title II § 319G,* PHSA Title II § 351A,* PHSA Title XVII § 2812, PHSA Title II § 301, PHSA Title II § 307, PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 319, PHSA Title II § 361, PHSA Title XVII § 2801	Permanent Indefinite	Direct, Federal Intramural, Cooperative Agreements, including Formula Grants/Cooperative Agreements; and Contracts	$1,395,459	$800,000
Buildings and Facilities				
Consolidated Appropriations Act, 2017 PL 115-31	Permanent Indefinite	Direct Federal/Intramural, Contracts	$9,932	$30,000
CDC-Wide Activities and Program Support				
PHSA Title II § 306,* PHSA Title II § 317,* PHSA Title II § 317F,* PHSA Title II § 319A, PHSA Title II § 319D, PHSA Title XVII § 2821,* PHSA Title II § 301, PHSA Title II § 304, PHSA Title II § 307, PHSA Title II § 308, PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 319, PHSA Title II § 322, PHSA Title II § 325, PHSA Title II § 327, PHSA Title II § 361-369, PHSA Title II § 363, PHSA Title II § 391	Permanent Indefinite	Direct Federal/Intramural, Contracts, Competitive Grants/Cooperative Agreements	$257,263	$155,000

[1] Expired/Expiring noted with *

APPROPRIATIONS HISTORY TABLE[1]

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2010 H1N1 Influenza Supplemental, CDC[2]	200,000,000	--	--	200,000,000
2010 Public Health Prevention Fund[3]	--	--	--	191,800,000
2010	6,312,608,000	6,313,032,000	6,733,377,000	6,390,387,000
2011	6,265,806,000	--	6,527,235,000	5,648,970,000
2011 Public Health Prevention Fund	610,900,000	--	--	610,900,000
2012	5,817,412,000	--	5,765,915,000	5,655,670,000
2012 Public Health Prevention Fund	752,500,000	--	848,000,000	809,000,000
2013 Enacted	4,991,523,000	--	5,713,698,000	5,657,023,000
2013 OMB 0.2% Rescission				($11,314,000)
2013 Sequestration	--	--	--	(284,581,000)
2013 Public Health Prevention Fund	903,210,000	--	858,000,000	462,916,000
2014	5,216,509,000	--	5,757,052,000	5,792,542,000
2014 Public Health Prevention Fund	755,110,000	--	839,000,000	831,300,000
2015	5,399,706,000	--	5,999,348,000	5,968,118,000
2015 Public Health Prevention Fund	809,510,000	--	887,300,000	886,300,000
2015 CR Ebola Funding (PL 113-164)	--	--	--	30,000,000
2015 Ebola Response and Preparedness[4]	--	--	--	1,771,000,000
2016	6,095,803,000	6,095,803,000	5,747,306,000	6,270,745,000
2016 Public Health Prevention Fund	914,300,000	914,300,000	892,950,000	892,300,000
2017	5,967,376,000	6,875,144,000	6,153,448,000	6,293,503,000
2017 Public Health Prevention Fund	944,470,000	908,300,000	891,300,000	891,300,000
2018	4,991,675,000	6,010,153,000	6,318,953,000	--
2018 Public Health Prevention Fund	840,600,000	840,600,000	800,900,000	--
2019	5,524,935,000	--	--	--
2019 Public Health Prevention Fund	--	--	--	--

[1] Does not include funding for ATSDR

[2] FY 2009 H1N1 influenza supplemental, Supplemental Appropriations Act, 2009 (P.L. 111-32). $473M transferred from HHS's Public Health and Social Services Emergency Fund to CDC; $200M directly appropriated to CDC.

[3] The Prevention and Public Health Fund (PPHF) amounts here reflect CDC's request and final amount allotted from the PPHF to CDC from HHS.

[4] Ebola Response and Preparedness is one-time emergency funding appropriated in FY 2015 for the U.S. Government response to contain, treat, and prevent the spread of Ebola.

APPROPRIATIONS NOT AUTHORIZED BY LAW

(dollars in millions)

Program	Last Year of Authorization	Authorization Level	Appropriations in Last Year of Authorization	Appropriations in FY 2018 Annualized CR[1]
Sexually Transmitted Diseases Grants (PHSA 318)	FY 1998	Such Sums…	$113.671	$151.276
National Cancer Registries (PHSA 399B)	FY 2003	Such Sums…	N/A	$49.104
National Center for Health Statistics (PHSA 306)	FY 2003	Such Sums…	$125.899	$159.308
WISEWOMAN (PHSA 1509)	FY 2003	Such Sums…	$12.419	$20.977
Asthma Surveillance & Grants (PHSA 317I, 399L)	FY 2005	Such Sums…	$32.422	$28.803
Folic Acid (PHSA 317J)	FY 2005	Such sums…	$2.188	$3.129
Injury Prevention and Control (PHSA 391—394A)	FY 2005	Such Sums…	$138.237	$284.116
Oral Health Promotion (PHSA 317M)	FY 2005	Such Sums…	$11.204	$17.878
Safe Motherhood/Infant Health Promotion (PHSA 317K, 317L)	FY 2005	Such Sums…	$44.738	$45.688
Grants to Promote Childhood Nutrition and Physical Activity (PHSA 399W)[2]	FY 2005	Such Sums…	$26.835	$31.917
Screening, Referrals, and Education Regarding Lead Poisoning (PHSA 317A)	FY 2005	$40.000	$36.474	$15.349
Birth Defects, Developmental Disability, Disability and Health (PHSA 317C)	FY 2007	Such Sums…	$122.242	$136.626
Developmental Disabilities Surveillance and Research Program (Autism) (PHSA 399AA)	FY 2011	$21.000 in FY 2011	$21.380	$22.943
Breast and Cervical Cancer[1] (PHSA 1501-10)	FY 2012	$275.000 in FY 2012	$204.779	$208.574
Johanna's Law (PHSA 317P)	FY 2012	$18.000 in FY 2012	$4.972	$5.463
Epidemiology Laboratory Capacity Grants (PHSA 2821)	FY 2013	$190.000 in FY 2013	$32.424	$36.116
National TB Strategy/Grants (PHSA 317E)	FY 2013	$243.101 In FY 2013	$132.997	$141.290
CDC Public Health Workforce and Career Development (PHSA 778)	FY 2013	$39.500 in FY 2013	$64.000	$49.660
National Diabetes Prevention Program (PHSA 399V-3)	FY 2014	Such sums…	$10.000	$22.347
Section 317 Immunization (PHSA 317(l))	FY 2014	Such sums…	$610.847	$573.380
Congenital Heart Disease Programs (PHSA 399V-2)	FY 2015	Such sums	$4.000	$3.611

NARRATIVE BY ACTIVITY

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IMMUNIZATION AND RESPIRATORY DISEASES

(dollars in millions)

	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$453.924	$451.910	$700.828	+$248.918
PPHF	$324.350	$292.856†	$0.000	-$292.856
PHSSEF[1]	$15.000	$0.000	$0.000	$0.000
Total Request	**$793.274**	**$744.766**	**$700.828**	**-$43.938**
FTEs	654	614	614	0
Immunization Program Level	**$606.121**	**$573.380**	**$520.828**	**-$52.552**
-Immunization Program - BA	$281.771	$280.524	$520.828	+$240.304
-Immunization Program - PPHF	$324.350	$292.856†	$0.000	-$292.856
Influenza/Influenza Planning and Response	**$187.154**	**$171.386**	**$180.000**	**+$8.614**
-Influenza Planning and Response – BA	$172.154	$171.386	$180.000	+$8.614
-Influenza Planning and Response– PHSSEF	$15.000	$0.000	$0.000	$0.000

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

[1]The FY 2017 Omnibus directs $15 million in PHSSEF pandemic influenza supplemental unobligated balances to be transferred to CDC.

Enabling Legislation Citation: PHSA Title II, §§ 301, 307, 310, 311, 317, 317N, 317S, 319, 319C, 319E, 319F, 322, 325, 327, 340C, 352, Title XVII*, 2102(a)(6), 2102(a)(7), 2125, 2126, 2127, 2821; Immigration and Nationality Act §§ 212 (8 U.S.C. 1182), 232 (8 U.S.C. 1222); Social Security Act § 1928 (42 U.S.C. 1396s)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural; Competitive Cooperative Agreements/Grants, including Formula Grants; Contracts; and Other

CDC prevents disease, disability, and death of children, adolescents, and adults through immunization and control of respiratory and related diseases. These activities are key to CDC's common defense for the country against public health threats through the prevention of infectious diseases. Through the discretionary Immunization Program and mandatory Vaccines for Children (VFC) Program, CDC improves access to immunization services for uninsured and underinsured U.S. populations and supports the scientific evidence base for vaccine policy and practices. CDC also provides critical epidemiology and laboratory capacity to detect, prevent, and respond to vaccine-preventable, respiratory, and related infectious disease threats and conducts preparedness planning for pandemic influenza.

IMMUNIZATION AND RESPIRATORY DISEASES

BY THE NUMBERS…

- CDC estimates that vaccination of children born between 1994 and 2016[1]
  - Prevents 381 million illnesses
  - Prevents 24.5 million hospitalizations
  - Helps avoid 855,000 early deaths
  - Saves nearly $360 billion in direct costs
  - Saves $1.65 trillion in total society costs
  - Every dollar spent in childhood vaccination ultimately saves $10.10

- In 2016, CDC provided technical support to over 60 vaccine-preventable disease investigations and conducted over 2,300 laboratory tests in support of these investigations.

- From March through December 2016, over 13,000 doses of meningococcal conjugate vaccine, purchased using CDC funding, were used to respond to a deadly outbreak of meningitis in Southern California.

- In March 2017, CDC assisted the Washington State Department of Health (WA DOH) in responding to an outbreak of mumps that included over 600 cases across 12 counties, including 16 cases at the University of Washington. CDC, state, and local health departments, and the University of Washington worked together to report cases, conduct surveillance, and provide outbreak control guidance. Nearly 300 doses of MMR vaccine were provided to high-risk students to help control the outbreak and prevent further cases.

- CDC estimates that for the 2015-2016 influenza season, influenza vaccination prevented approximately 5.1 million influenza illnesses, 2.5 million influenza-associated medical visits, and 71,000 influenza-associated hospitalizations. This represents a 19 percent reduction in the burden of influenza illness.[2]

- CDC's international support resulted in the most significant increase in countries reporting to WHO FluNet since 2005 when 40% of its partner countries had this capability; as of 2016, 80% of CDC Influenza Partner countries routinely report to WHO FluNet.

References:

[1] Updated data from previous article: Whitney, Cynthia, Zhou, Fangjun, Singleton, James, et al. Benefits from Immunization During the Vaccines for Children Program Era-United States, 1994-2013. MMWR 2014; 63: [352-355]. Available at https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6316a4.htm?s_cid=mm6316a4_w

[2] Rolfes MA, Foppa IM, Garg S, Flannery B, Brammer L, Singleton JA, et al. Estimated Influenza Illnesses, Medical Visits, Hospitalizations, and Deaths Averted by Vaccination in the United States. 2016 Dec 9 [2017 Dec 19]; https://www.cdc.gov/flu/about/disease/2015-16.htm Division program impact report 2015-2016

Immunization and Respiratory Diseases Funding History	
Fiscal Year	Dollars (in millions)
2015 (BA)	$573.105
2015 (PPHF)	$210.300
2015 (PHSSEF)	$15.000
2016 (BA)	$457.805
2016 (PPHF)	$324.350
2016 (PHSSEF)	$15.000
2017 Final (BA)	$453.924
2017 Final (PPHF)	$324.350
2017 Final (PHSSEF)	$15.000
2018 Annualized CR (BA)	$451.910
2018 Annualized CR (PPHF)†	$292.856
2019 President's Budget (BA)	$700.828
2019 President's Budget (PPHF)	$0.000

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

Immunization Program Ten-Year Funding History	
Fiscal Year	Dollars (in millions)
2008 (BA)	$527.359
2009 (BA)	$557.359
2009 (ARRA)	$300.000
2010	$561.459
2011	$488.576
2011 (PPHF)	$100.000
2012 (BA)	$452.215
2012 (PPHF)	$190.000
2013 (BA)	$461.160
2013 (PPHF)	$90.883
2014 (BA)	$450.547
2014 (PPHF)	$160.300
2015 (BA)	$400.547
2015 (PPHF)	$210.300
2016 (BA)	$285.247
2016 (PPHF)	$324.350
2017 Final (BA)	$281.771
2017 Final (PPHF)	$324.350
2018 Annualized CR (BA)	$280.524
2018 Annualized CR (PPHF)†	$292.856
2019 President's Budget (BA)	$520.828
2019 President's Budget (PPHF)	$0.000

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

Immunization Program Budget Request

CDC's national immunization recommendations currently provide guidance for the prevention of 17 vaccine-preventable diseases (VPDs) across the lifespan. The discretionary Immunization Program plays a fundamental role in achieving national immunization goals and sustaining high vaccination coverage rates to prevent death and disability from VPDs.

The Immunization Program provides funding to support public health functions and ensure program effectiveness and scientifically sound immunization policy. A strong public health infrastructure at the national, state, and local levels is vital to sustaining high vaccination coverage levels and low incidence of VPDs. Support also maintains public health preparedness for response to a vaccine-preventable national emergency, such as a pandemic or biologic attack.

The Immunization Program purchases routinely recommended vaccines to protect at-risk populations not eligible for immunizations through the Vaccines for Children (VFC) Program and to meet urgent public health needs such as controlling VPD outbreaks. The flexibility of the Program is critical: the discretionary Immunization Program allows states to use their purchased vaccines to meet their unique needs and priorities in responding to VPD outbreaks. The public health functions supported by the program include providing a safety net for those who cannot otherwise access immunization services, managing vaccine shortages, conducting continual quality improvement efforts with immunization providers, monitoring the safety and effectiveness of vaccines and vaccine programs, preventing disease outbreaks and responding early and rapidly should they occur, and preparing to respond quickly and comprehensively to other urgent vaccine emergencies, such as pandemics.

Budget Request

CDC's FY 2019 request of **$520,828,000** for the Immunization Program is $52,551,586 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reduction from the FY 2018 President's Budget Request.

In FY 2019, at this funding level, CDC will continue to provide funding to the 64 immunization awardees for state infrastructure awards and vaccine direct assistance. CDC will also continue providing technical assistance and laboratory support to states and local communities responding to vaccine-preventable disease investigations, including outbreaks.

Preserving Core Public Health Immunization Infrastructure

The discretionary Immunization Program supports the public health workforce and systems at the national, state, and local levels that protect all Americans from disability and death from VPDs.

CDC conducts scientific studies that provide the basis for national immunization recommendations and programs including the burden of disease, vaccine effectiveness and safety, economic considerations, and program feasibility. For example, CDC's vaccine effectiveness research provided critical scientific evidence that informed the Advisory Committee on Immunization Practices' (ACIP) recommendation to reduce the number of doses of HPV vaccine from three to two.

In addition, CDC collects, analyzes, and reports scientific data about vaccines to ensure the effectiveness and safety of our national vaccine recommendations and programs and to inform changes to the recommendations and programs as needed. This includes:

- Monitoring the effectiveness of vaccines when used in real-life settings
- Monitoring safety of U.S.-licensed vaccines and evaluating vaccine safety concerns
- Updating technology to enhance electronic adverse-event reporting

- Developing vaccine safety profiles for each newly licensed vaccine in collaboration with other federal agencies

CDC supports science-based communication efforts to aid Americans in making informed vaccine decisions to protect themselves and their loved ones. CDC also conducts outreach to healthcare providers about current immunization recommendations and clinical best practices to help them protect their patients and communities from VPDs.

CDC responds to disease outbreaks by:

- Rapidly identifying and investigating cases
- Conducting surveillance and laboratory testing
- Implementing targeted vaccination efforts and other measures to control the spread of disease and prevent future outbreaks

In 2016, CDC provided technical support to over 60 vaccine-preventable disease investigations and conducted over 2,300 laboratory tests in support of these investigations. For example, in March 2017, CDC assisted the Washington State Department of Health (WA DOH) in responding to an outbreak of mumps that included over 600 cases across 12 counties, including 16 cases at the University of Washington. CDC, state, and local health departments, and the University of Washington worked together to report cases, conduct surveillance, and provide outbreak control guidance. Nearly 300 doses of MMR vaccine were provided to high-risk students to help control the outbreak and prevent further cases.

Maintaining an Adequate Amount of Vaccine Purchase

The Immunization Program is responsible for providing federally purchased vaccines to protect uninsured Americans from preventable diseases—and thus protect communities from the dangers of low vaccination rates. The discretionary vaccines serve uninsured adults and provide rapid vaccination response to disease outbreaks and other urgent public health needs.

The discretionary Immunization Program can be used to vaccinate non-VFC-eligible populations in a public health emergency. For example, from March through December 2016, over 13,000 doses of meningococcal conjugate vaccine, purchased using CDC funding, were used to respond to a deadly outbreak of meningitis in Southern California.

In FY 2019, CDC will work collaboratively with its awardees and providers to sustain record-high childhood immunization coverage rates and help ensure that all Americans have access to vaccines.

Making Strategic Investments

CDC makes strategic investments to address gaps in vaccine coverage rates, including HPV, adult immunizations, and in rural populations. Through increases in coverage rates, the full potential of these vaccines to reduce disease burden, prevent severe illness and death, and lower costs associated with these diseases can be fully realized. To improve HPV vaccination coverage, for example, CDC funded 22 immunization programs to use their Immunization Information Systems (IIS) for reminder/recall for adolescents 11 to 18 years of age and to conduct a comprehensive communication and education campaign. In addition, CDC supported a national network of immunization and cancer-prevention organizations to engage clinical and immunization partners at a national, regional, state, tribal, territorial, jurisdictional, and local level. CDC also works with professional medical organizations to educate their members about HPV vaccine and the importance of a strong clinician recommendation for the vaccine. CDC works with complementary health care venues such as pharmacies and retail-based clinics to improve adult vaccination coverage rates, and along with HHS, provides leadership to the

National Adult and Influenza Immunization Summit, a network of provider organizations, health systems, public health, and others working on innovative strategies to increase adult immunization.

Anticipating the evolving role of public health, CDC has also strategically directed immunization resources to prepare for changes in the healthcare environment. In FY 2019, CDC will continue to implement health information technologies to give healthcare providers the necessary immunization information to ensure their patients receive the vaccines they need, when they need them, and will manage vaccine supply disruptions and shortages to ensure the best public health outcomes until vaccine supplies are restored.

Immunization's Role in Public Health

Funding Category	FY 2019 Immunization Program Funding
State Infrastructure	Funds public health immunization workforce and systems at the state and local levels, including to: recruit and educate networks of immunization providers; provide continual quality assurance; promote public awareness of new and expanded vaccine recommendations; manage vaccine shortages; and respond to vaccine preventable disease outbreaks. These awards include core infrastructure/operations funding that goes to all awardees.
Vaccine Purchase	Allocated through direct assistance to provide federally purchased vaccines to vaccinate non-VFC-eligible uninsured populations and to meet urgent public health needs such as controlling vaccine preventable diseases outbreaks.
Extramural Program Operations	Supports national immunization policies and programs, including: disease surveillance; vaccine coverage assessment; post-marketing evaluation of vaccine effectiveness and safety; immunization information technologies; centralized vaccine ordering and distribution systems; payer of last resort; public awareness campaigns and resources; and provider education and tools.
Intramural Program Operations	Provides national public health expertise in immunization and vaccine preventable diseases to national, state, and local vaccination program efforts, including expertise in epidemiology and surveillance, laboratory methods and science, immunology, immunization policy, health communications science, vaccine management, and program implementation.

Supporting State and Territorial Immunization Programs

In FY 2019, CDC will provide infrastructure funding to 64 awardees—including all 50 states; Washington, D.C.; five large cities; five territories; and three Freely Associated States—through a non-competitive, formula-based, discretionary cooperative agreement program that provides financial assistance for state and local immunization operations. The five-year cooperative agreement awarded in FY 2013 will be extended for one additional year. Through population-based awards, collaboration, and a strong public-private partnership, the discretionary Immunization Program establishes a comprehensive immunization system providing:

- Public sector vaccine ordering and distribution
- Continual quality assurance
- Provider recruitment and enrollment in the VFC Program
- Provider education and public awareness focused on new and expanded vaccine recommendations
- Management of vaccine shortages

In addition, CDC will continue to provide its 64 awardees with direct assistance for vaccine purchased from the federal contracts. CDC monitors spend plans developed by awardees, and makes further adjustments as needed throughout the year so that no vaccine goes to waste.

CDC provides national public health expertise in vaccine preventable diseases that supports the 64 awardees, including expertise in:

- Epidemiology and surveillance
- Laboratory methods and science
- Immunization policy
- Health communications science
- Vaccine management
- Program implementation and evaluation

Immunization Cooperative Agreements[1, 2, 3]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	64	64	64
- New Awards	0	0	0
- Continuing Awards	64	64	64
Average Award	$5.778	$4.712	$4.712
Range of Awards	$0.410–$45.696	$0.357–$36.845	$0.357-$36.845
Total Awards	$369.767	$301.542	$301.542

[1] This table includes Immunization Program budget authority and Prevention and Public Health Funds. It does not include funds from the former program implementation line.

[2] Immunization operations awards and vaccine direct assistance are included in the table. The five-year cooperative agreement awarded in FY 2013 will be extended for one additional year.

[3] These funds are awarded by formula.

Influenza Planning and Response Budget Request

CDC's influenza program works to detect, respond to, and prevent influenza disease that can cause illness, and at times, death. Some populations—such as older adults, young children, and people with certain health conditions—are at higher risk for serious influenza complications. CDC estimates that from the 2010-2011 to 2014-2015 flu seasons, influenza-associated deaths in the United States ranged from a low of 12,000 (during 2011-2012) to a high of 56,000 (during 2012-2013), representing an increase in previously reported estimates. Flu-related hospitalizations have also increased over previously reported estimates. From 2010-2011 to 2015-2016 flu seasons, CDC estimates that influenza-related hospitalizations in the United States ranged from a low of 140,000 (2011-2012) to 710,000 (2014-2015) annually. During 2015-2016, more than 15,000 children younger than 5 years were hospitalized from flu complications. Flu-related hospitalizations of children younger than 5 years in the United States are estimated to have ranged from 7,000 to 26,000 since 2010. A study[1] published in 2007 estimated direct medical costs for hospitalizations and outpatient visits from seasonal influenza-related complications at more than $10 billion annually.

Not only can influenza infections be severe, but influenza seasons are unpredictable—requiring constant vigilance from CDC and its domestic and international public health partners. CDC provides leadership and a cutting-edge scientific and programmatic foundation for the diagnosis, prevention, and control of influenza both domestically and internationally. CDC's annual seasonal influenza activities improve preparedness by:

- Strengthening surveillance and diagnostic capacity
- Improving public awareness and provider knowledge about influenza and the importance of vaccination, other prevention measures, and early treatment
- Enhancing our international, federal, state, and local partnerships to respond quickly to influenza epidemics

Prevention of seasonal influenza requires an annual reassessment of virus strains contained in the vaccine—an assessment based on CDC surveillance data. The vaccine must be produced and administered annually to account for seasonal variations.

Since 2010, the Advisory Committee on Immunization Practices (ACIP) has recommended influenza vaccine for all Americans aged six months and older. To implement this recommendation, CDC works to educate providers and raise public awareness. CDC makes special efforts to reach high-risk individuals, such as pregnant women, and provides further outreach to subspecialty medical providers to increase vaccination of persons at especially high risk of severe illness or death from influenza. CDC also promotes vaccination at non-traditional venues—such as retail pharmacies—to increase access to vaccine services outside of clinic settings and hours.

Budget Request

CDC's FY 2019 request of **$180,000,000** for Influenza Planning and Response in budget authority is $8,613,841 above the FY 2018 Annualized CR level. FY 2019 funding will support the following activities:

- Influenza prevention, detection, and monitoring
- State/Municipality/Territorial laboratory capacity support
- Planning and responding to influenza pandemics and/or viruses with potential to become pandemics, such as H7N9.

[1] http://www.ncbi.nlm.nih.gov/pubmed/17544181

Influenza Prevention

In FY 2019, CDC will defend against the health threat of influenza through vaccination. Each season, CDC focuses on increasing demand for influenza vaccine through health communications and outreach to providers and the general public and targeted outreach to high-risk populations about the importance of vaccination; and partnerships with pharmacists to extend access to influenza vaccination. Annual vaccination campaigns help reach the Healthy People 2020 influenza vaccination goals, including those for minority and high-risk populations, and help build capacity for vaccination efforts in the event of an influenza pandemic.

CDC estimates that for the 2015-2016 influenza season, influenza vaccination prevented approximately 5.1 million influenza illnesses, 2.5 million influenza-associated medical visits, and 71,000 influenza-associated hospitalizations.[2] This represents a 19 percent reduction in the burden of influenza illness; which is similar to what has been seen previously during seasons when most circulating influenza viruses were like the vaccine viruses. A CDC published, December 2016 report underscores the benefits of the current vaccination program while highlighting areas where improvements in vaccine formulation and effectiveness could deliver greater benefits to the public's health.

To complement national efforts, resources are available to all 64 immunization awardees to increase demand for seasonal influenza—including school-located vaccination clinics—and to improve influenza coverage rates among priority populations (school-aged children, high-risk adults, and racial and ethnic groups). CDC will measure vaccination coverage, with particular attention to racial and ethnic minority populations with historically low coverage rates. These surveys guide outreach efforts that have resulted in improvements in influenza vaccination rates, particularly among children.

Influenza Detection and Monitoring

Detection and monitoring of influenza involves a network of laboratories at the state level and internationally that are routinely testing samples to:

- Determine severity of the influenza season[3]
- Identify viruses that are causing disease and may pose a pandemic threat
- Determine the effectiveness of the influenza vaccine and other interventions

Ongoing work to improve laboratory and surveillance methods ensures that CDC can adequately respond to unusual influenza cases. CDC's efforts to increase capacity for influenza surveillance includes training state public health laboratory workers that respond to foodborne outbreaks to apply their skills in response to influenza.

In FY 2019, CDC will continue to serve as a World Health Organization (WHO) Collaborating Center to rapidly detect, identify, and characterize emerging influenza viruses so vaccine-candidate viruses used to produce vaccines for seasonal and novel viruses are rapidly selected. During FY 2016, CDC was able to fully characterize 6,206 specimens using Next Generation Sequencing (NGS). NGS uses advanced molecular detection (AMD) to identify gene sequences from each virus in a sample. This level of detail can directly benefit public health decision-making in important ways, but data must be carefully interpreted by highly-trained experts in the context of other available information.

CDC continues to work with domestic and international partners in the intersection of human and animal health to improve surveillance, conduct swift outbreak responses, and complete threat assessments for emerging influenza viruses with pandemic potential. Pandemics may occur when a virus that is predominantly transmitted

[2] https://www.cdc.gov/flu/about/disease/2015-16.htm
[3] http://www.cdc.gov/flu/weekly/fluactivitysurv.htm

among animals develops the ability to be transmitted among humans. Each human case of infection with an animal influenza virus represents the potential for a pandemic. CDC will conduct research to understand better the complex factors that determine how and when these novel influenza viruses develop the ability to be transmitted from person to person. For example, with the emergence of H5N8 and H5N2 in birds in the United States in 2015, CDC worked with its animal health partners, as well as with state and local public health, to ensure capacity to detect and respond to human infection.

Novel influenza viruses can emerge anywhere in the world. To combat this threat, CDC supports the international monitoring of influenza and evaluates core capacities of its partners to conduct surveillance, perform laboratory testing, and prepare to respond to influenza pandemics. CDC's influenza program funds WHO regional offices, as well as partner nations through cooperative agreements. CDC will continue this support to countries that have the potential for animal outbreaks and human cases of H5N1 and H7N9 influenza.

Since 2005, CDC has supported over 50 partner countries. CDC's international support resulted in the most significant increase in countries reporting to WHO FluNet since 2005 when 40% of its partner countries had this capability; as of 2016, 80% of CDC Influenza Partner countries routinely report to WHO FluNet. CDC will work on expanding virus sample sharing among countries so that vaccines and diagnostic tests for viruses with pandemic potential can be produced.

Supporting State/Municipality/Territorial Laboratory Capacity

The Epidemiology and Laboratory Capacity for Infectious Diseases cooperative agreement (ELC) assists states and eligible local public health agencies—strengthening their basic epidemiologic and laboratory capacity to address infectious disease threats. CDC funds 50 states, three municipalities, and four territories through the ELC to conduct influenza surveillance and diagnostic activities with funding from the Influenza Planning and Response budget line.

In FY 2019, public health departments will be funded to improve detection of novel human influenza virus infections. Collaboration between the state and local health authorities and CDC is essential for risk assessment and response to similar novel viruses. In addition, these funds support seasonal influenza surveillance consisting of eight interrelated systems. This network of systems provides data on:

- Influenza viruses
- Outpatient influenza-like illness
- Influenza-associated hospitalizations
- Influenza-associated deaths
- Geographic distribution of the viruses
- The network also forms the foundation for pandemic influenza surveillance.

Planning For and Responding to Influenza Pandemics

In FY 2019, CDC will work to ensure the availability and effectiveness of medical countermeasures and equipment in the event of an influenza pandemic. Scientific experts will continue to update or develop guidance that will inform purchasing countermeasure requirements. Examples of countermeasures include antiviral drugs, respirators or masks, and ventilators to assist patients with breathing. CDC also will develop and evaluate solutions to lessen the impact of an influenza pandemic through non-pharmaceutical interventions or actions that people and communities can take to help slow the spread of influenza. In addition, CDC is developing a nationwide system of triage call centers that would be activated during a severe pandemic to provide advice to ill individuals and thereby reduce the burden on hospitals, healthcare facilities, and public health departments. CDC collaborates with the National Association of County and City Health Officials (NACCHO), the Association of

State and Territorial Health Officials (ASTHO), and national associations that represent pharmacies, pharmacists, and pharmaceutical distributors on efforts to improve antiviral distribution and dispensing at the local level during a pandemic.

CDC will sustain the nation's ability to respond to influenza pandemics by ensuring well-trained staff are in place for pandemic response. CDC will support planning efforts among health departments, hospitals, and emergency responders. Coordination among these groups will result in more integrated emergency response plans prior to a public health disaster to ensure a rapid, efficient, and effective response at the community level. CDC will test its response capabilities with federal, state, and local partners in FY 2019 with multiple exercises using techniques such as virtual tabletop and functional exercises to evaluate and improve its response plans based on lessons from previous responses and exercises.

State Table: Discretionary (Section 317)[1,2]

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$4,613,915	$3,875,866	$3,875,866	$0
Alaska	$1,468,977	$1,235,877	$1,235,877	$0
Arizona	$8,325,011	$6,753,103	$6,753,103	$0
Arkansas	$3,099,804	$2,654,063	$2,654,063	$0
California	$45,696,483	$36,845,215	$36,845,215	$0
Colorado	$5,289,651	$4,323,482	$4,323,482	$0
Connecticut	$3,887,090	$3,211,410	$3,211,410	$0
Delaware	$1,513,783	$1,283,068	$1,283,068	$0
District of Columbia (D.C.)	$2,140,871	$1,706,036	$1,706,036	$0
Florida	$13,456,466	$11,255,526	$11,255,526	$0
Georgia	$10,632,305	$8,722,627	$8,722,627	$0
Hawaii	$1,861,295	$1,553,600	$1,553,600	$0
Idaho	$2,674,738	$2,177,592	$2,177,592	$0
Illinois	$6,676,250	$5,602,298	$5,602,298	$0
Indiana	$6,464,506	$5,306,549	$5,306,549	$0
Iowa	$4,158,660	$3,414,368	$3,414,368	$0
Kansas	$2,789,430	$2,331,917	$2,331,917	$0
Kentucky	$4,808,646	$3,980,844	$3,980,844	$0
Louisiana	$5,051,621	$4,060,225	$4,060,225	$0
Maine	$2,207,711	$1,887,271	$1,887,271	$0
Maryland	$4,694,008	$4,016,257	$4,016,257	$0
Massachusetts	$8,437,473	$6,742,146	$6,742,146	$0
Michigan	$10,501,693	$8,626,089	$8,626,089	$0
Minnesota	$6,124,163	$5,040,237	$5,040,237	$0
Mississippi	$3,261,201	$2,692,710	$2,692,710	$0
Missouri	$6,018,265	$4,849,868	$4,849,868	$0
Montana	$1,654,025	$1,369,993	$1,369,993	$0
Nebraska	$2,073,493	$1,651,136	$1,651,136	$0
Nevada	$3,180,474	$2,615,875	$2,615,875	$0
New Hampshire	$2,487,022	$2,078,591	$2,078,591	$0
New Jersey	$6,778,576	$5,495,308	$5,495,308	$0
New Mexico	$4,382,517	$3,745,298	$3,745,298	$0
New York	$9,294,805	$7,848,446	$7,848,446	$0
North Carolina	$11,013,859	$8,955,576	$8,955,576	$0
North Dakota	$3,920,224	$3,356,307	$3,356,307	$0
Ohio	$10,498,093	$8,535,784	$8,535,784	$0
Oklahoma	$4,978,545	$4,078,785	$4,078,785	$0
Oregon	$5,093,891	$4,158,970	$4,158,970	$0
Pennsylvania	$9,688,411	$7,974,344	$7,974,344	$0
Rhode Island	$2,540,243	$2,033,513	$2,033,513	$0
South Carolina	$4,959,465	$4,089,542	$4,089,542	$0
South Dakota	$2,112,333	$1,673,845	$1,673,845	$0
Tennessee	$6,664,123	$5,438,930	$5,438,930	$0
Texas	$30,359,201	$24,248,538	$24,248,538	$0
Utah	$2,998,238	$2,518,864	$2,518,864	$0
Vermont	$1,917,508	$1,544,353	$1,544,353	$0
Virginia	$7,604,180	$6,251,986	$6,251,986	$0
Washington	$7,914,484	$6,429,222	$6,429,222	$0
West Virginia	$3,449,354	$2,701,324	$2,701,324	$0
Wisconsin	$7,479,618	$5,972,855	$5,972,855	$0

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Wyoming	$1,189,808	$992,489	$992,489	$0
Cities				$0
Chicago	$6,193,120	$4,909,316	$4,909,316	$0
Houston[2]	$2,512,813	$2,190,946	$2,190,946	$0
New York City	$9,023,516	$7,267,563	$7,267,563	$0
Philadelphia	$2,712,564	$2,243,941	$2,243,941	$0
San Antonio[2]	$1,791,043	$1,561,627	$1,561,627	$0
Territories				$0
American Samoa	$449,824	$388,471	$388,471	$0
Guam	$1,269,297	$1,050,521	$1,050,521	$0
Marshall Islands	$3,946,379	$2,956,814	$2,956,814	$0
Micronesia	$5,646,548	$4,115,413	$4,115,413	$0
Northern Mariana Islands	$963,016	$810,866	$810,866	$0
Puerto Rico	$4,047,821	$3,249,620	$3,249,620	$0
Republic Of Palau	$714,232	$531,905	$531,905	$0
Virgin Islands	$410,325	$356,882	$356,882	$0
Subtotal States	**$330,086,504**	**$269,908,116**	**$269,908,116**	**$0**
Subtotal Cities	**$22,233,055**	**$18,173,393**	**$18,173,393**	**$0**
Subtotal Territories	**$17,447,441**	**$13,460,492**	**$13,460,492**	**$0**
Total States/Cities/Territories	**$369,767,000**	**$301,542,000**	**$301,542,000**	**$0**
Total Resources	**$369,767,000**	**$301,542,000**	**$301,542,000**	**$0**

[1] This state table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit https://wwwn.cdc.gov/FundingProfiles/FundingProfilesRIA/.

[2] Immunization infrastructure/operations grant funding only; vaccine direct assistance for Houston and San Antonio is included with Texas.

State Table: Vaccines for Children [1,2,3]

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$70,501,298	$68,023,167	$72,836,935	$4,813,768
Alaska	$11,786,542	$13,474,268	$14,751,485	$1,277,217
Arizona	$108,959,088	$110,259,180	$117,854,366	$7,595,186
Arkansas	$47,935,559	$46,081,345	$49,353,439	$3,272,094
California	$565,582,071	$541,101,608	$578,846,981	$37,745,373
Colorado	$60,186,482	$61,774,049	$66,466,407	$4,692,358
Connecticut	$38,555,991	$37,714,850	$41,274,669	$3,559,819
Delaware	$12,861,255	$12,907,519	$14,224,423	$1,316,904
District of Columbia (D.C.)	$12,011,978	$12,882,821	$14,197,550	$1,314,730
Florida	$304,618,888	$289,152,826	$308,016,821	$18,863,995
Georgia	$150,760,290	$153,804,892	$164,387,513	$10,582,621
Hawaii	$18,795,311	$19,016,392	$21,184,608	$2,168,217
Idaho	$25,216,794	$26,350,812	$28,405,821	$2,055,009
Illinois	$95,631,526	$98,088,119	$105,577,673	$7,489,554
Indiana	$81,150,660	$83,625,536	$89,417,765	$5,792,229
Iowa	$41,811,927	$37,422,269	$40,522,172	$3,099,903
Kansas	$30,965,851	$30,695,635	$32,963,917	$2,268,282
Kentucky	$59,144,136	$59,745,098	$63,931,299	$4,186,201
Louisiana	$85,647,771	$86,116,805	$91,946,892	$5,830,087
Maine	$15,144,341	$16,526,439	$18,353,583	$1,827,144
Maryland	$81,833,194	$79,492,392	$85,142,060	$5,649,668
Massachusetts	$81,230,899	$78,418,965	$84,663,747	$6,244,782
Michigan	$105,918,372	$111,528,879	$120,135,417	$8,606,538
Minnesota	$55,838,301	$52,617,373	$56,834,009	$4,216,636
Mississippi	$48,786,810	$47,782,398	$51,038,239	$3,255,841
Missouri	$73,345,523	$74,459,370	$79,688,386	$5,229,016
Montana	$11,977,122	$12,420,009	$13,597,738	$1,177,730
Nebraska	$22,561,214	$23,760,790	$25,693,233	$1,932,443
Nevada	$40,740,759	$41,118,769	$44,330,998	$3,212,228
New Hampshire	$12,326,792	$12,446,217	$13,706,904	$1,260,687
New Jersey	$91,618,694	$91,517,625	$98,425,612	$6,907,986
New Mexico	$39,182,740	$36,326,666	$39,380,165	$3,053,500
New York	$122,337,374	$126,773,808	$137,520,134	$10,746,326
North Carolina	$139,019,646	$125,237,791	$133,699,602	$8,461,811
North Dakota	$7,695,969	$8,833,558	$9,703,118	$869,559
Ohio	$143,614,018	$145,481,148	$155,053,907	$9,572,759
Oklahoma	$65,441,410	$67,429,205	$72,702,152	$5,272,947
Oregon	$44,990,341	$44,352,740	$48,018,513	$3,665,773
Pennsylvania	$113,593,806	$105,815,188	$114,380,532	$8,565,345
Rhode Island	$13,033,554	$14,801,143	$16,319,265	$1,518,122
South Carolina	$70,863,610	$67,400,162	$72,037,250	$4,637,088
South Dakota	$11,840,326	$13,413,768	$14,585,216	$1,171,448
Tennessee	$94,607,261	$92,819,598	$99,309,032	$6,489,434
Texas	$505,931,901	$500,558,616	$533,616,707	$33,058,091
Utah	$30,985,750	$31,781,881	$34,441,918	$2,660,037
Vermont	$8,909,900	$10,052,773	$11,309,922	$1,257,149
Virginia	$75,732,519	$71,162,649	$75,925,667	$4,763,018
Washington	$102,282,577	$104,787,116	$113,323,879	$8,536,762
West Virginia	$24,136,517	$24,045,458	$26,035,488	$1,990,030
Wisconsin	$54,872,811	$53,893,365	$57,914,723	$4,021,358

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Wyoming	$6,089,984	$6,415,134	$7,164,529	$749,395
Cities				
Chicago	$49,251,084	$52,188,201	$56,519,499	$4,331,297
Houston[2]	$833,801	$1,887,370	$2,720,246	$832,875
New York City	$159,968,685	$167,565,547	$179,783,517	$12,217,970
Philadelphia	$33,004,649	$32,884,874	$35,927,576	$3,042,703
San Antonio[2]	$635,595	$1,479,769	$2,132,775	$653,006
Territories				
American Samoa	$1,716,295	$1,553,978	$1,702,398	$148,420
Guam	$3,150,190	$3,611,896	$4,179,193	$567,297
Northern Mariana Islands	$3,257,294	$3,108,430	$3,377,418	$268,989
Puerto Rico	$44,193,710	$51,532,428	$55,549,556	$4,017,129
Virgin Islands	$2,316,244	$3,387,324	$4,356,442	$969,118
Subtotal States	**$4,138,607,453**	**$4,081,708,183**	**$4,380,212,379**	**$298,504,196**
Subtotal Cities	**$243,693,814**	**$256,005,761**	**$277,083,613**	**$21,077,851**
Subtotal Territories	**$54,633,732**	**$63,194,055**	**$69,165,008**	**$5,970,953**
Total States/Cities/Territories	**$4,436,935,000**	**$4,400,908,000**	**$4,726,461,000**	**$325,553,000**
Total Resources[3]	**$4,436,935,000**	**$4,400,908,000**	**$4,726,461,000**	**$325,553,000**

[1] This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). Includes vaccine direct assistance and immunization infrastructure/operations grant funding. For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit http://wwwn.cdc.gov/FundingProfiles/FundingProfilesRIA/.

[2] Immunization infrastructure/operations grant funding only; vaccine direct assistance for Houston and San Antonio is included with Texas.

[3] Total resources are based on the OMB-approved FY 2019 VFC PB 10 Year Table.

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HIV/AIDS, VIRAL HEPATITIS, SEXUALLY TRANSMITTED INFECTIONS AND TUBERCULOSIS

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$1,114.652	$1,109.691	$1,117.278	+$7.587
FTEs	1,083	1,023	983	-40
- Domestic HIV/AIDS Prevention and Research	$786.868	$783.356	$748.712	-$34.644
- Viral Hepatitis	$33.920	$33.769	$34.000	+$0.231
- Sexually Transmitted Infections	$151.941	$151.276	$152.310	+$1.034
- Tuberculosis	$141.923	$141.290	$142.256	+$0.966
-Infectious Disease Elimination Initiative	N/A	N/A	$40.000	+$40.000

Enabling Legislation Citation: PHSA Title II, §§ 301, 306(a-l), 306(n)*, 307, 308(d), 310, 311, 317, 317E(a-f)*, 317E(g)*, 317N(a-b), 317N(c)*, 317P(a-c), 318(a-d), 318(e)*, 318(f), 318B*, 322, 325,- 327, 352, Title XVII*, 2315, 2320, 2341; Title II of P.L. 103-333

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with*

Allocation Methods: Direct Federal/Intramural, Competitive Grant/Cooperative Agreements, Formula Grants/Cooperative Agreements, Contracts, and Other

CDC defends Americans' health by preventing illness and death through science, surveillance, and service. CDC prioritizes cost-effective, scalable programs, policies, and research to achieve the greatest impact on reducing the incidence of HIV, viral hepatitis, STIs, and tuberculosis—all of which have personal, societal, and economic costs. In addition to CDC's infectious disease programs, CDC works to implement evidence-based drug prevention in school and community settings, and to stop the spread of infectious diseases like HIV and hepatitis C among people who inject drugs. CDC also works to reduce health disparities associated with these diseases and to help adolescents avoid infection. In recent years, major increases in infectious diseases have occurred as a result of the opioid crisis, including a tripling of the number of hepatitis C infections. CDC provides technical assistance to state and local health departments and community-based organizations on the most effective strategies for engaging people who inject drugs into treatment for drug use and infectious diseases. Through targeted program investments, CDC saves lives and money. For example:

- For every $1 spent on HIV testing, $2 in direct medical costs is saved. Over a three year period, CDC's Expanded Testing Initiative provided more than 2.8 million HIV tests, and identified more than 18,000 new HIV cases, averting $1.2 billion in direct medical costs;[4]
- CDC's STI program helps prevent 21,000 cases of Pelvic Inflammatory Disease and 4,000 cases of tubal infertility annually, saving $77 million in averted healthcare costs per year;
- Over a 20 year period, CDC's Tuberculosis prevention efforts prevented as many as 319,000 cases of TB, saving up to $14.5 billion, including costs from TB deaths; and[5]

[4]Hutchinson AB, et al. JAIDS 2012 Mar 1;59(3):281-6. Return on public health investment: CDC's Expanded HIV Testing Initiative

[5] Castro KG, Marks SM, Chen MP, Hill AN, Becerra JE, Miramontes R, Winston CA, Navin TR, Pratt RH, Young KH, LoBue PA. Estimating tuberculosis cases and their economic costs averted in the United States over the past two decades. International Journal of Tuberculosis and Lung Disease. 2016; 20(7):926–933.

- For every $1 spent on school nursing programs, more than $2 is saved in societal costs.[6]

CDC's FY 2019 request of **$1,117,278,000** for HIV/AIDS, Viral Hepatitis, Sexually Transmitted Infections and Tuberculosis is $7,587,435 above the FY 2018 Annualized CR level. At the proposed FY 2019 funding level, CDC will continue to prioritize cost-effective, scalable programs, policies, and research to achieve the greatest impact on reducing the incidence of HIV, viral hepatitis, STIs, and tuberculosis.

Infectious Disease Elimination Initiative

CDC is requesting **$40,000,000** in FY 2019 for the Infectious Disease Elimination Initiative. This new initiative will support efforts to eliminate new infections, and where relevant, decrease prevalence of HIV, hepatitis B virus (HBV), hepatitis C virus (HCV), STIs such as syphilis, and tuberculosis in select states/jurisdictions at high-risk for these infectious diseases, including those with high rates of opioid-related transmission. New advances in diagnostics, treatment, and surveillance tools provide the opportunity to detect and eliminate multiple interrelated infections. These efforts include focusing on diagnosing infections and curing people of latent TB infection and active TB disease, syphilis and other STIs, and HCV; effectively treating HIV and HBV; and implementing efforts to prevent new infections with these pathogens. In addition, the recent HIV and hepatitis C outbreak in Indiana is powerful evidence that persons who inject drugs (PWID), including opioids, are at high risk for both HIV and viral hepatitis, and that these blood borne infections can gain ground at any time unless the nation remains vigilant about prevention, testing, and care. CDC's clinical and community-based infectious disease programs can be leveraged to detect and eliminate multiple interrelated infections in targeted geographic locations.

These resources would be used for activities such as:

- Enhancing surveillance systems which will allow public health to detect cases early, analyze and report them quickly, and rapidly respond with targeted prevention interventions.
- Identifying and addressing structural and system-level interventions that improve access to prevention and clinical preventive services, disease intervention services, timely access to treatment, and linkage to care.
- Supporting health system providers, including correctional health systems, to increase screening and treatment for those affected by these infectious diseases.
- Working with payers to assure reimbursement of clinical preventive services (screening and treatment) recommended by CDC and professional organizations.
- Enabling state and local public health systems to expand clinical and program activities such as testing for viral hepatitis, STIs, TB, and HIV infection, ensuring treatment, vaccination, syringe services, provision of referral to addiction and mental health services, provision of naloxone and overdose prevention training, and dissemination of educational materials.
- Providing the public with the information they need to get tested and treated, when appropriate, and reduce risk behaviors.

[6] Wang LY, Vernon-Smiley M, Gapinski MA, Desisto M, Maughan E, Sheetz A. Cost-Benefit Study of School Nursing Services.*JAMA Pediatr.* 2014;168(7):642–648.

Accelerating the Elimination of Perinatal HIV Transmission

Perinatal HIV transmission, also known as mother-to-child transmission, can happen at any time during pregnancy, labor, delivery, and breastfeeding. Advances in HIV research, prevention, and treatment have made it possible for many women living with HIV to give birth without transmitting the virus to their babies. If treated early in her pregnancy, a woman's risk of transmitting HIV to her baby can be reduced to one percent or less. The availability of these effective interventions and the significant reductions in the number of HIV-infected infants in the United States, indicate that elimination of perinatal HIV transmission is possible. In FY 2019, CDC and HRSA will work together to prioritize prevention, treatment, and education efforts to accelerate the elimination of this form of transmission.

HIV/AIDS, VIRAL HEPATITIS, SEXUALLY TRANSMITTED INFECTIONS AND TUBERCULOSIS

BY THE NUMBERS…

- In 2015, the 61 CDC-funded jurisdictions conducted approximately 3 million CDC-funded HIV tests; 12,547 persons were newly diagnosed as HIV-positive which represents about 1/3 of new HIV diagnoses in the United States.[1]
- In 2017, CDC identified 52 clusters of active HIV transmission and provided technical support to 14 states to address them.
- CDC-funded education agencies improved access to sexual health services for adolescents by increasing the number of school districts that have a procedure in place to refer students to health services from 27% to 52%.
- Since 2013, CDC responded to 142 viral hepatitis outbreaks and isolated transmission events, involving 3,251 patients. Over the same time period, CDC's viral hepatitis laboratory performed 165,834 serologic and nucleic acid tests for outbreak investigations, acute disease surveillance, and the National Health and Nutrition Examination Survey (NHANES).
- Since the 1970s, CDC-funded STD programs have prevented 32 million cases of gonorrhea. This represents a 75% decline in the national gonorrhea rate — and a total savings of $3.7 billion. [2]
- Approximately 95% of all isolates from cases of Tuberculosis in the United States are tested at CDC's laboratory for drug resistance and are genotyped for the detection of outbreaks.[3]

References:

[1] HIV/AIDS. (2017, September 26). Retrieved December 20, 2017, from http://www.cdc.gov/hiv/library/reports/index.html

[2] Chesson, H. (2006). Estimated Effectiveness and Cost-Effectiveness of Federally-Funded Prevention Efforts on Gonorrhea Rates in the United States, 1971-2003. Sexually Transmitted Diseases 2006, 33(10), s140-s144.

[3] Reported Tuberculosis in the United States, 2016. (2017). Retrieved December 20, 2017, from https://www.cdc.gov/tb/statistics/default.htm

HIV, Viral Hepatitis, Sexually Transmitted Infections, and TB Funding History	
Fiscal Year	Dollars (in millions)
2015	$ 1,117.609
2016	$ 1,121.017
2017 Final	$ 1,114.652
2018 Annualized CR	$1,109.691
2019 President's Budget	$1,117.278

Domestic HIV/AIDS Prevention and Research Budget Request

CDC is America's lead agency in the fight to prevent new HIV infections. The estimated number of people living with HIV in the United States is 1.1 million with an estimated 37,600 new HIV infections in 2014. Sustained investments and improving efficiency in HIV prevention and treatment have yielded major successes—saving lives and money. The estimated lifetime costs of a single person living with HIV infection is greater than $400,000. Between 1991 and 2006, HIV prevention efforts averted approximately 350,000 infections, saving the United States more than $125 billion in direct medical costs.[7] However, 15,000 deaths per year are among people living with HIV, and the lifetime medical costs of the large number of new cases remain substantial, highlighting the importance of continuing to improve prevention efforts.

CDC invests in a high-impact HIV prevention approach. This combination of scientifically proven, cost-effective, and scalable HIV prevention interventions, targeted to the most heavily affected populations and geographic areas, has yielded major successes. HIV incidence declined 10.3% and the percentage of undiagnosed infection decreased from 17.1% to 15% in the United States during 2010-2014. Due to sustained testing efforts, the proportion of Americans with HIV who know their status reached 85% in 2014. People living with HIV are living longer, healthier lives due to better, life-prolonging treatments. More youth are delaying their first sexual experience—reducing their risk for HIV and other sexually transmitted infections. The percent of 9th and 10th graders who have ever had sex has decreased over the last decade, and is now at 24% of 9th graders and 36% of 10th graders. Currently, populations such as gay, transgender, bisexual, and other men who have sex with men (MSM), Blacks or African Americans, Hispanics or Latinos, and people who live in the southern United States, are disproportionately affected.

CDC is committed to HIV prevention, surveillance, and implementation of science programs and a strong dedication to serving people in the nation at highest risk for and living with HIV. To sustain the progress of HIV prevention efforts and move toward the goal of no new infections, CDC must:

- Implement highly effective biomedical, risk reduction, and HIV prevention education initiatives.
- Increase knowledge of HIV status through HIV testing.
- Reduce transmission of HIV by linking persons infected with HIV to care, ensuring that they remain in care, and achieving viral suppression.
- Use robust surveillance data to inform prevention efforts, as well as rapidly detect and interrupt active HIV transmission.

CDC's HIV prevention efforts aim to reduce the number of new HIV infections, increase access to care, improve health outcomes for people living with HIV, and reduce HIV-related health disparities. The declines in annual HIV infections reflect the success of CDC's national HIV prevention and treatment efforts and commitment to high impact prevention. Of CDC's total funds that support programs focused on domestic HIV prevention, CDC spends approximately 89% externally to support state and local health departments, community-based organizations, and other partners. CDC protects Americans' health by:

- Supporting, managing, and providing guidance and resources to state and local health departments, community-based organizations, and other partners to implement HIV prevention interventions.
- Collaborating with national, state, and local partners to monitor HIV trends and characterize related risk factors to guide public health action at federal, state, and local levels.
- Conducting epidemiologic, behavioral, biomedical, and bio-behavioral research so CDC can better understand individual, social, and structural HIV risk factors; the current and changing context around HIV transmission; and the most effective and impactful prevention strategies to shape public health action at federal, state, and local levels.

[7]JAIDS Journal of Acquired Immune Deficiency Syndromes: 15 August 2010 - Volume 54 - Issue 5 - pp 565-567

- Providing science-based and culturally appropriate training and capacity building support for partner organizations to strengthen and sustain the capabilities of the HIV prevention workforce.
- Monitoring and evaluating the effectiveness of HIV prevention programs at the federal, state, and local levels to ensure HIV resources have the greatest impact.
- Developing, producing, and disseminating scientific communication on HIV for public and private providers, persons at risk of HIV infection, and the public to ensure these audiences have the tools needed to protect themselves or their patients from HIV infection.
- Collaborating with state, local, and territorial education agencies to monitor youth health behavior, implement HIV and other disease prevention programs, and provide expert guidance to schools and youth organizations on school health services, prevention programs, and safe and supportive school environments.

Budget Request

CDC's FY 2019 request of **$748,712,000** for Domestic HIV/AIDS Prevention and Research is $34,643,857 below the FY 2018 Annualized CR level. CDC will focus its efforts on sustaining the declines achieved and reaching those Americans who are at highest risk. CDC will continue to work towards the national HIV/AIDS targets and elimination of perinatal transmission of HIV.

Key HIV Prevention Activities

CDC leads America's fight against HIV/AIDS by focusing domestic HIV prevention work in five key areas: 1) prevent new infections, 2) increase knowledge of HIV status, 3) prevent transmission of HIV, 4) rapidly detect and interrupt active HIV transmission, and 5) reduce HIV-related health disparities.

Preventing New HIV Infections - HIV prevention in the United States has a substantial impact on public health. Recent estimates show annual HIV infections in the U.S. declined by 18%, between 2008 and 2014—preventing 33,200 cases at estimated cost savings of $14.9 billion for medical care[8,9,10]. Targeted investments in HIV prevention and treatment save lives and money across America. CDC invests surveillance and prevention resources in the places and among populations most affected by HIV. CDC will award nearly $400 million per year to health departments, focusing on surveillance and prevention efforts in communities and local areas where HIV is most heavily concentrated. CDC also supports capacity-building assistance and ensures that on-the-ground prevention programs and their staff are best able to provide HIV prevention services in their communities. With CDC funding, health departments also support services and data-to-care activities for persons at risk for or living with HIV in areas with a high burden of disease. CDC prevention efforts include:

- **Improving Uptake of Bio-Medical Interventions** - CDC is leading multiple efforts to improve awareness and delivery of bio-medical interventions for prevention in community settings. Bio-medical interventions, when used with other prevention strategies, have the potential to help at-risk individuals protect themselves and reduce new HIV infections in the United States. When taken as directed, these interventions, such as pre-exposure prophylaxis, can reduce the risk of HIV infection by more than 90%. For example, CDC currently provides funding for a free national service for clinicians seeking advice and consultation on prescribing these medications. This service provides a valuable resource for primary care providers (e.g., physicians, nurse practitioners, and physician assistants) who care for uninfected patients in communities most affected by HIV.

[8] Farnham PG et al. Updates of Lifetime Costs of Care and Quality of Life Estimates for HIV-Infected Persons in the United States: Late Versus Early Diagnosis and Entry Into Care. J Acquir Immune Defic Syndr 2013; 64: 183-189.
[9] Mermin J, Fenton KA. The Future of HIV Prevention in the United States. JAMA. 2012;308(4):347-348.
[10] https://www.cdc.gov/nchhstp/newsroom/2017/croi-hiv-incidence-press-release.html

- **HIV Prevention Education and Risk Reduction** -- Prevention education and risk reduction programs include a variety of methods to support and sustain positive health behaviors to limit and eliminate HIV-related health risks. CDC assesses evidence on behavioral interventions to determine which ones have the greatest potential to reduce HIV transmission. Through funding to health departments and community-based organizations, CDC prioritizes behavioral interventions that help HIV-positive individuals remain in care and avoid transmission. In addition, CDC supports efforts to link individuals to other services they need to remain in care or avoid infection, including drug abuse treatment, mental health services, housing, and transportation. CDC targets these efforts to identify individuals at highest risk of acquiring or transmitting HIV.

  It is also important to equip Americans with the information needed to protect themselves and their partners. CDC supports efforts to provide the latest science and education tools to the public and clinical community to assist them in navigating the changing HIV prevention environment and make informed choices about the prevention options that are right for them and their patients.

- **Elimination of Mother to Child (Perinatal) Transmission** -- To achieve national goals of reducing perinatal transmission to less than 1% out of 100,000 live births in the United States, CDC will continue to invest in eliminating mother-to-child transmission of HIV, primarily through its efforts with health departments, in jurisdictions with recent perinatal HIV cases, or a high number of HIV infected women of child bearing age. CDC will increase screening in these women, track women infected with HIV and their infants, and conduct real-time investigations of perinatal acquisition cases to understand where the system failed and address them. CDC and HRSA will strengthen partnerships with other Federal agencies and organizations to ensure women of childbearing age living with HIV have access to the care they need to stay healthy and keep their babies free of HIV.

- **Syringe Services Programs** -- The United States is experiencing a growing prescription opioid and heroin use crisis, which is increasing unsafe, nonsterile injection practices nationally, making many communities susceptible to outbreaks of HIV and viral hepatitis among people who inject drugs (PWID). The cost of an HIV outbreak, similar to the one in Indiana in 2015 (227 cases), is estimated at approximately $102 million. CDC supports state and local communities who wish to use Federal funds to implement syringe services programs (SSPs), after consulting with CDC and in accordance with state and local law. SSPs are community-based programs that address drug use and infectious diseases. Based on existing evidence, SSPs when part of a comprehensive HIV prevention strategy, can play a critical role in preventing HIV among PWID, can facilitate entry into substance use disorder treatment and medical services, and do not increase illegal drug use. As of December 2017, 37 state or county health departments have adequately demonstrated need and received CDC concurrence under Federal law. CDC has also identified capacity building assistance (CBA) providers with expertise in the implementation of SSPs to support SSP-related technical assistance requests.

- **Preventing HIV among youth** -- Engaging in risky behaviors during the adolescent years not only presents immediate risk but can have serious health consequences into adulthood, with 22% of all new HIV diagnoses occurring among people aged 13–24 years. Delaying and decreasing adolescent sexual risk behaviors, working with schools to promote knowledge of sexual risk behaviors and associated health outcomes, and promoting access to youth-friendly health services and safe and supportive environments is important. CDC's adolescent and school health work is unique, providing funding, expert guidance, and technical assistance to state and local education agencies to support schools to implement HIV and other STD prevention programs. CDC focuses on promoting environments where teens can establish healthy behaviors for a lifetime, connect to health services, and avoid risky behaviors that put them at increased risks for HIV, STIs, and unplanned pregnancy. CDC's school-based HIV prevention program focuses in three areas: national surveillance, supporting schools to implement primary prevention programs, and building the evidence for what works in prevention.

- **Increasing Knowledge of HIV Status** -- CDC tests people at risk for HIV, primarily through health department and community-based organizations programs. Of the estimated 1.1 million people living with HIV in the United States, approximately one in seven are unaware of their HIV infection. In 2015, the 61 CDC-funded jurisdictions conducted approximately 3 million CDC-funded HIV tests; 12,547 persons were newly diagnosed as HIV-positive, which represents about 1/3 of new HIV diagnoses in the United States, and 84.9% of these individuals were linked to HIV medical care within 90 days. In addition, CDC partners with state and local organizations, especially in states with low diagnosis rates (i.e., lower rates of persons diagnosed with HIV among all persons living with HIV) to focus testing efforts to more effectively diagnose HIV in persons previously unaware of their infection. CDC is also working with the healthcare sector to increase implementation of the U.S. Preventive Services Task Force (USPSTF) recommendation to screen for HIV infection in all adolescents and adults aged 15 to 65 years. CDC is also investing in improved diagnostic testing methods and technologies to make testing easy, quick, and able to detect HIV very early after infection.
- **Preventing Transmission of HIV** -- Through research, scientific advancement, and best practices, CDC knows now better than ever before how to prevent HIV and preserve the health of those infected. In addition to evidence that HIV testing can lead to earlier treatment and longer, healthier lives for those infected, recent data shows that people living with HIV who take HIV medicine as prescribed and get and keep an undetectable viral load have effectively no risk of transmitting HIV to their HIV-negative sexual partners. HIV-infected people who are undiagnosed or those diagnosed but not retained in care account for the transmission of an estimated eight out of 10 new U.S. HIV infections.[11] For this reason, CDC focuses specifically on diagnosing HIV infection early; rapidly linking people with HIV to ongoing care, treatment, risk reduction programs, and related support and social services; and helping them receive regular care, adhere to their medication regimens, and achieve viral suppression.
- **Achieving Viral Suppression** -- Improving health outcomes for persons living with HIV and preventing HIV transmission are cornerstones of CDC's prevention efforts. Evidence shows that diagnosing HIV and ensuring people with HIV receive early, ongoing care and treatment to achieve viral suppression could avert the majority of HIV infections in the United States. Since many persons living with HIV fall out of care, and too many of them do not achieve ongoing viral suppression, CDC supports the use of cutting-edge disease surveillance tools to identify and follow-up with them to re-engage them in medical care.

  CDC examines new approaches, including studies of clinical, behavioral, and structural interventions to help people with HIV stay in care and adhere to their medications. Additionally, CDC developed guidelines and educational materials for healthcare providers related to HIV testing, care, treatment, and prevention. CDC also works with states to improve the completeness of their laboratory data and reporting of viral suppression information. In addition, CDC will work with states to encourage the implementation and uptake of strategies, such as Data to Care, and advancing efforts to use state and local public health information to identify persons living with HIV who have fallen out of HIV medical care and engage them in care.

Rapidly Detect and Interrupt Active HIV Transmission -- CDC uses the national HIV surveillance system to target HIV prevention efforts near real-time. Ensuring that people living with HIV receive the care they need to achieve viral suppression is of highest importance to reduce transmission and improve health outcomes. Targeting this work to networks with active transmission can improve success and save time and money. CDC will continue to use surveillance data, including HIV ribonucleic acid (RNA) sequence data, to identify clusters of recent and rapid linked transmissions. These networks can include persons with HIV who are not in care or virally suppressed and persons at high risk for exposure to HIV, who can then be connected to intensive prevention interventions and medical care.

[11] This estimate is only of MSM and Heterosexuals

CDC develops surveillance reports and conducts analyses to guide national, state, and local prevention and testing programs and health education efforts directed towards affected populations. These reports help CDC determine populations most affected by HIV infection and to inform providers on how to improve performance and care. CDC's surveillance system also informs other federal programs and helps CDC target resources to communities that need those resources most.

Reducing HIV-Related Health Disparities -- Although we have made advances in HIV/AIDS prevention, including declines in new infections, HIV continues to be a major public health problem in the United States. Declines in new infections have been uneven. Recent data shows HIV infections increased by 35% in 25-34 year old gay and bisexual men; and new infections increased by 20% among Latino gay and bisexual men between 2010 and 2014. CDC's most recent final data (2015), shows that most newly diagnosed HIV infections occurred among persons of color, especially black/African Americans (44%) and Latinos or Hispanics (24%) and among young people under the age of 35 years.

Likewise, HIV touches every corner of the United States, but the rate of HIV diagnoses (number of diagnoses per 100,000 people) is highest in the South and Northeast, compared with the West and Midwest. In 2015, Southern states accounted for an estimated 51% of all people living with an HIV diagnosis in the U.S., despite having only about one-third (37%) of the overall U.S. population. In addition, people living with HIV in the South are less likely to be aware of their infection than those living in other U.S. regions.

CDC will continue to allocate the majority of HIV resources to populations most affected by HIV. CDC will work with partners at the local, state, and federal level to bring HIV prevention information and resources into affected communities and advance HIV prevention in the United States.

Key Strategies for Advancing Domestic HIV Prevention

CDC invests in health departments; surveillance; improving program effectiveness and approaches; national, regional, local, community, and other organizations; and school health to implement key HIV prevention activities.

Investing in Health Departments to Prevent HIV

CDC investments in core HIV prevention programs at state and local health departments provide the foundation for HIV prevention and control in America. CDC directly funds health departments that serve communities affected by HIV by conducting HIV testing, providing critical prevention interventions, improving linkages to, retention in, and when needed, re-engagement in care, and with the goal of achieving greater rates of viral suppression. In 2018, CDC will implement a comprehensive HIV surveillance and prevention program to prevent new HIV infections and achieve viral suppression among persons living with HIV. In particular, this newly integrated program will allow health departments to better align their resources to match the geographic burden of HIV infections within their jurisdictions. This flagship HIV prevention program is a chief contributor to HIV prevention success in the United States, including increases in persons who know their HIV status as well as reductions in perinatal HIV infections and HIV diagnoses. CDC's support for state and local health departments encompasses not just funding, but program guidance and technical assistance, including assistance in seeking reimbursement for services possibly covered under health insurance policies (e.g., billing for testing for HIV and related co-infections in healthcare settings, counseling, and vaccination). CDC also assists health departments in monitoring and evaluating performance and holds programs accountable for implementing high impact prevention strategies.

Investing in HIV Surveillance

CDC's surveillance activities, which take place in all 50 states, the District of Columbia, and U.S. territories, support identification and targeting of prevention efforts—including HIV testing—towards populations that have high rates of acquiring and transmitting HIV. CDC investments in HIV surveillance data provide important information on the number of people living with HIV in the U.S. and national trend data. CDC also tracks how well states, cities, and local communities are doing in getting patients into care and keeping them in care and virally suppressed. High quality surveillance data assesses the delivery of services to people living with HIV across the entire continuum of care: HIV diagnosis, linkage to and retention in HIV medical care, starting and staying on antiretroviral therapy, and suppressing viral load. The integration of HIV surveillance and prevention programs will allow each jurisdiction to operate in unison and maximize the impact of federal HIV prevention funding by improving data collection and using it to drive public health action.

In addition, surveillance efforts serve as a resource for health information across CDC on youth in schools, and play a critical role in documenting public health trends and challenges. They also provide invaluable information for state and local decision-making. Surveillance activities include monitoring adolescent health risk behaviors and school-based HIV prevention activities such as health education, health services, and safe and supportive environments.

Investing in Efforts to Improve Program Effectiveness and Identifying Effective HIV Prevention Approaches

CDC investments support prevention research and demonstration projects in several domains that are crucial to successful HIV prevention programs in health departments and community-based organizations. These domains include epidemiological and laboratory science, outbreak investigation and response, social and behavioral science, and statistical and economic analyses. This work includes efforts to identify better strategies CDC grantees can use to link persons with HIV to care, to engage and retain them in HIV medical care, and promote adherence to their antiretroviral medication regimens. In addition, these investments support laboratory research, in collaboration with NIH, to identify new biomedical approaches to HIV prevention, as well as outbreak investigation and response efforts needed to interrupt active networks of transmission. Resources support providing public and clinical care providers with information on effective HIV prevention strategies, so they can best protect themselves or their patients from acquiring or transmitting HIV. Finally, CDC also examines how communities are using new biomedical and bio-behavioral interventions to improve HIV prevention and identifies related best practices to share nationally to maximize the impact of prevention efforts.

Investing in National, Regional, Local, Community, and Other Organizations

CDC invests in prevention across America at the community level. CDC formally partners with community-based organizations to expand the impact and reach of HIV prevention activities in communities disproportionately affected by HIV and has since the late 1980's. Community-based organizations' access, history, credibility, and ability to serve the most affected communities make these organizations important partners in providing comprehensive high-impact HIV prevention services to people living with and at greatest risk for HIV infection.

CDC partners with community-based organizations to provide HIV testing, linkage to, and retention in HIV medical care, support services for persons living with HIV and for HIV negative persons living in communities most affected by HIV, as well as other effective interventions. CDC targets resources to areas where the majority of HIV diagnoses are occurring in the United States.

Investing in School Health

CDC also invests in school-based support for effective programs to prevent high risk behaviors that contribute to HIV infection and other STDs among adolescents. CDC's school-based programs build school capacity to implement health education, connect youth to health services, and build supportive environments. These programs will implement effective school based strategies to prevent risk for HIV and other STDs, including

sexual risk, substance use, and other associated risk factors (e.g., violence). CDC prioritizes funding for jurisdictions with high rates of HIV infection and partners with nongovernmental organizations (NGOs) to help state and local grantees effectively implement their HIV/STD prevention efforts.

CDC also invests in organizations that provide science-based training and capacity building support for partner organizations to strengthen and sustain the capabilities of the HIV prevention workforce serving youth. These investments will ensure that on-the-ground prevention programs and their staff have the skills, information, and organizational support to best serve people living with, and at risk for, HIV in their communities.

Viral Hepatitis Budget Request

CDC is uniquely positioned to invest in, and partner with, state and local health departments, universities, medical centers, community-based organizations, and others to defend and protect the United States against viral hepatitis disease threats by:

- Decreasing mortality through diagnosing and treating people who are living with viral hepatitis;
- Reducing the number of new infections associated with injection drug use and other modes of transmission;
- Preventing perinatal (mother-to-child) transmission of hepatitis B (HBV) and hepatitis C (HCV); and
- Supporting state, local, and tribal HBV and HCV elimination programs.

Approximately 4.4 million people, or nearly the combined populations of Boston and Los Angeles, live with viral hepatitis, and 55,800 new viral hepatitis infections occurred in 2015. Viral hepatitis is the major cause of liver cancer, one of the deadliest cancers with rates that are on the rise. Yet, as few as 33% of people with hepatitis B and 50% of people with hepatitis C are aware of their infection status. Implementation of CDC's recommendations for HCV testing and linkage to curative treatment will save over 320,000 lives. CDC's most recent data from 2015 shows that 20 states accounted for 85% of new cases of hepatitis B and C reported nationally. Reported cases of acute hepatitis C infection increased more than 2.9 times from 2010 to 2015.

The opioid crisis is fueling increases in new viral hepatitis infections. Reported rates of acute HCV infection increased 167% from 2010 through 2015. CDC found that the highest reported incidence of new cases of HCV is among white persons aged 20-29 years, most often transmitted through injection drug use of prescription opioids or heroin. There have also been significant increases in HCV infection among those 30-39 years (113% increase from 2010 to 2015). New cases of HBV are occurring in this same population. Epidemics of HCV are occurring in many states, but are concentrated in tribal nations and in the non-urban communities of Appalachia, the mid-West, and New England. Additionally, the rates of new cases of HCV infection are beginning to increase in urban areas.

Of the hepatitis viruses, HCV, HBV, and hepatitis A (HAV), are the most common. Although each manifests similar symptoms, they have different transmission vectors and have different effects on the liver.

- HCV is common, deadly, and curable if persons are diagnosed early and receive treatment before they develop liver cancer and other severe consequences of HCV infection. Exposure to contaminated blood is the most common means of transmission, typically through injecting or snorting drugs, transmission at the time of birth from mother to child, and transmission in healthcare settings with poor infection control. Infection control in healthcare and syringe services programs can prevent HCV transmission; an HCV vaccine is not available. HCV is cured in greater than 95% of patients with 8-12 weeks of antiviral medication. Curing HCV infection eliminates the risk of transmission to others and reduces the risk of life-threatening liver cancer by over 70%.
- HBV transmits from mother to child at birth, among household contacts, sexual partners, and from bloodborne exposures to HBV in healthcare settings and among injection drug users. HBV infection is prevented by a three-dose vaccine that provides greater than 95% protection. The Hepatitis B vaccine is the world's first vaccine that prevents cancer. Timely vaccination also protects children from HBV infection beginning at birth. Although not curative for infected persons, HBV therapy suppresses viral replication, and lowers risk of liver cancer by 50%.
- HBV and HCV infections are typically silent, initially causing no obvious symptoms. In many people, HBV and HCV attack and damage the liver for decades. As a result, these chronically infected people remain unaware of their infection until they develop liver damage, cirrhosis, liver failure, or liver cancer. Infected people also suffer from viral hepatitis-related kidney disease, arthritis, diabetes, and blood disorders.

- HAV transmits from person to person in situations with poor hygiene, and from consuming contaminated food products or water. Common exposures to HAV in congregated settings or imported contaminated food products can result in large outbreaks. The two-dose HAV vaccine prevents over 95% of infection. HAV causes illness lasting from a few weeks to a few months, with adults having the highest risk of liver failure and death.

Budget Request

CDC's FY 2019 request of **$34,000,000** for Viral Hepatitis is $230,894 above the FY 2018 Annualized CR level. The FY 2019 Budget will protect and defend Americans at greatest risk of becoming infected with viral hepatitis disease threats (HBV and HCV) and will help Americans who are living with viral hepatitis infection lead healthier, more productive, and longer lives.

Key Hepatitis Activities

Decrease mortality through diagnosing and treating people who are living with viral hepatitis

An early diagnosis, coupled with care and treatment of those infected, greatly reduces the risk of liver disease and mortality caused by viral hepatitis. To increase the number of people being diagnosed and treated in the United States, in FY 2019, CDC will prioritize funding to:

- Increase the number of health systems and their providers who test, manage, and treat HBV and HCV;
- Update recommendations for HCV testing to assure new risk populations are offered testing with linkages to care for those persons diagnosed with HCV;
- Access previously collected electronic health record data to monitor and evaluate testing and linkage to care and treatment;
- Support state, local, and tribal initiatives to improve viral hepatitis vaccination, testing, and linkage to care and treatment as part of community-based HBV and HCV elimination programs; and
- Support state and local health departments to implement and evaluate interventions to improve viral hepatitis testing and linking to care, particularly in states where the burden of viral hepatitis is greatest.

State and local health departments voluntarily report cases of viral hepatitis to CDC. Collecting, verifying, and reporting the many cases of HBV and HCV in the United States is beyond the capacity of many health departments; therefore, not all states report data to CDC and/or permit CDC to publish their data in national surveillance reports. CDC’s most recent data from 2015 shows that 28 states are reporting both acute and chronic HBV and HCV to CDC. CDC funds hepatitis surveillance and case investigation to collect more extensive and complete information about patients and disease transmission trends in a select number of jurisdictions. CDC supports improved active surveillance of acute and chronic HBV and HCV in 14 statewide jurisdictions representing more than 70% of the HBV and HCV cases reported in the United States in 2014. This support enables jurisdictions to better utilize data to prioritize activities for HBV and/or HCV surveillance and prevention and to evaluate and support prevention programs. In addition, six jurisdictions (Louisiana, Massachusetts, New Jersey, Tennessee, Washington, and West Virginia) receive additional funds to promote HBV and HCV testing in venues likely to serve people who inject drugs who have been difficult to reach and link them to care and treatment.

CDC will continue to work with health authorities to ensure rapid and coordinated surveillance, detection, and response to HAV outbreaks related to multi-state or national distribution of contaminated food products, and among homeless populations, as well as HBV and HCV outbreaks resulting from poor infection control practices. A large proportion of the homeless populations has an HCV infection, increasing the severity of disease and the

number of hospitalizations related to these HAV outbreaks. Between 2012 to December-2017, CDC investigated six large HAV outbreaks, with over 1,500 total cases reported and investigated in 2017 alone.

Since March 2017, CDC has been assisting several state and local health departments with hepatitis A outbreaks, spread through person to person contact, that have occurred primarily among persons who are homeless, persons who use injection and non-injection drugs, and their close direct contacts. CDC has assisted state and local jurisdictions as requested with epidemiological and lab support. For example, at the request of the San Diego County Health Department, in May 2017 CDC sent two epidemiologists to San Diego to evaluate HAV outbreak response, strengthen the outbreak case definition, identify and interview cases, and assist in creating a database for analysis to inform public health decisions. CDC is continuing to provide technical assistance to the California Department of Public Health to provide feedback and support as the state carries out their outbreak response activities, targeting the risk groups and locations that are critical for controlling the outbreak. CDC also assisted Michigan with on-the-ground support in late fall 2017 and continues to work with officials to stop the outbreak there. CDC will continue to provide advanced molecular laboratory and epidemiologic support to the states affected and will deploy additional staff as requested and needed by state and local officials.

In FY 2019, state and local grantees will continue to implement and evaluate interventions to increase viral hepatitis diagnosis and treatment in up to two settings in jurisdictions heavily burdened by chronic viral hepatitis.

Reduce the Number of New Infections Associated with Injection Drug Use and Other Modes of Transmission

In at least six states in 2015, increases in HBV transmission joined the increases in HCV transmission reflecting poor HBV vaccination coverage among at-risk adults. In response to the urgent need to curb the epidemic of HCV and HBV infections, CDC's work in states with a substantial burden of viral hepatitis promotes:

- Improving viral hepatitis surveillance to detect new HBV and HCV infections, investigating transmission networks, and responding with interventions that protect affected communities particularly in states most vulnerable to epidemics of HCV.
- Training to support state and local health department staff in actively identifying networks of HCV transmission among PWID and other high-risk populations.
- Providing guidance and technical assistance for implementing comprehensive community-based HCV prevention programs that include access to clean injection equipment, medication assisted therapy, HBV vaccination, and HBV and HCV testing and treatment.
- Tennessee has one of the highest reported case rates of acute HCV infection in the country and case rates are on the rise. Tennessee, along with three other states in Central Appalachia, demonstrated a 364% increase in reported acute HCV from 2006 to 2012 among individuals aged 30 years and younger. In 2016, CDC provided technical assistance upon request of the state to a) conduct HCV case finding among high-risk heterosexuals in three counties in East Tennessee, and b) make recommendations on appropriate public health interventions. CDC sent four "disease detectives" in fall 2016 to East Tennessee, who concluded that HCV is significantly associated with injecting and snorting drugs, and a history of incarceration. Tennessee is working to increase access to medication-assisted treatment and HCV treatment for their highest-risk residents.

Prevent Perinatal (Mother-to-Child) Transmission of Hepatitis B Virus and Hepatitis C Virus

Through CDC's implementation of effective HBV vaccine-based strategies, data shows that since 1992 the annual rates of new HBV infections have decreased more than 90%. However, transmission of HBV continues to occur among several key populations. The youngest and highest risk population for HBV infection is the approximately 24,000 infants born each year to HBV-infected mothers, many of whom are Asian-American. These infants are at highest risk for developing chronic HBV infection later in life. Hepatitis-related liver cancer disproportionately affects Asian-Americans and persons of African descent.

CDC continues to support activities focused on the national goal of eliminating mother-to-child transmission of HBV. The cornerstones of preventing perinatal HBV transmission are giving a birth dose of HBV vaccine to all infants within 24 hours of birth. The cornerstones of preventing perinatal HBV transmission are testing all pregnant women for HBV infection, providing a timely dose of HBV vaccine, and other interventions to newborns of infected mothers. CDC is developing recommendations for hepatitis B vaccination, testing, and treatment that protects the health of the mother and eliminates the risk of HBV for her newborn.

Hepatitis C infections are increasing among pregnant women and their newborns, which is an emerging consequence of the increases in substance use among young adults. To improve detection, testing, and linkage to care, CDC will develop recommendations on appropriate curative HCV treatments for women of childbearing age, pregnant women, and children affected with HCV at birth.

Support State, Local, and Tribal Hepatitis B and Hepatitis C Elimination Programs

CDC is a major partner in the national effort to eliminate the public health threat of viral hepatitis and will continue to take action to prevent incidence, morbidity, and mortality associated with viral hepatitis. For example, building on the successes and progress of projects in the Cherokee Nation and other settings, CDC will continue to assist state/local and tribal development of HCV and HBV prevention programs that have goals and plans for eliminating HBV and HCV. The objectives of the programs are to identify best practices that can assist other state and local jurisdictions with developing similar programs that will save lives and save money. CDC is also investing in expanded surveillance that will support elimination projects -- enabling jurisdictions to better track trends and identify and respond to outbreaks swiftly -- and evaluating high impact strategies to prevent new HCV infections in high-risk populations.

Sexually Transmitted Infections Budget Request

Sexually transmitted infections (STIs) compromise Americans' health and cost billions of dollars in healthcare. Adverse outcomes associated with STIs include pelvic inflammatory disease (PID), infertility, neurological conditions, congenital abnormalities, and increased risk of HIV infection. CDC's most recent data from 2016 shows there were more cases of chlamydia, gonorrhea, and syphilis (including congenital syphilis in babies) than ever reported before. Every year, 20 million new STI cases cost the U.S. healthcare system $16 billion each year in lifetime direct medical care costs per incident case. This includes 5,000 new STI-attributable HIV cases each year in the U.S., costing $2 billion. While STIs most severely affect young people and women, increasing rates among men contributed to the overall increases across these STIs.

Although most syphilis is found in men, syphilis is increasing among all populations, and the number of cases were higher than in any of the past 24 years. Congenital syphilis, passed from a pregnant woman to her baby, is rapidly increasing even though it is completely preventable. Pregnant women should access prenatal care early, and their health care provider should screen them for syphilis at the first visit - and treat them immediately, if infected. Some women should be tested more than once during pregnancy by their healthcare provider. Congenital syphilis is especially concerning, because it results in infant death in up to 40% of cases. Among infants who survive, congenital syphilis can cause developmental delays, permanent deafness, neurological impairment, and bone deformities.

Health departments reported a record number of chlamydia cases (1,526,658) to CDC in 2015, as well as the highest number of gonorrhea cases (395,216) in any of the past 24 years. Young people account for the majority of reported chlamydia and gonorrhea infections. CDC works with partners and health plans to identify evidence-based strategies to increase chlamydia screening – screening is especially important because infections are often asymptomatic, and can lead to serious medical consequences, including infertility.

CDC is the only federal agency that directly supports and funds STI prevention and control activities by state, territorial, and local health departments. In this unique role, CDC provides national leadership, research, policy assessment, and scientific information about STIs to the medical community and the general public. CDC coordinates and publishes national STI guidelines and recommendations, which translate research into practice and serve as the gold standard for STI care in the United States.

CDC's STI prevention and control activities include:

- Supporting health departments to:
    - Collect and analyze information on notifiable STIs (i.e., syphilis, gonorrhea, chlamydia, and chancroid)
    - Conduct disease investigations, contact tracing, and linkage to treatment for patients diagnosed with STIs to reduce adverse health outcomes and transmission and prevent further spread of disease
    - Respond to public health outbreaks
    - Ensure appropriate screening to rapidly detect STIs and timely treatment by clinical providers
    - Conduct scientific investigations to better understand how diseases are spread throughout the community
    - Supporting training and education of health and medical professionals involved in STI screening and treatment.

CDC's STI surveillance, service, and scientific activities improve health and save money. Over a 33-year period, CDC's support and funding prevented 32 million cases of gonorrhea, saving $4.9 billion in medical costs. Annually, CDC's support and funding prevented 21,000 cases of PID and 4,000 cases of infertility, averting $77 million in healthcare costs.

CDC's STI activities do not duplicate any services covered by private health insurance or publicly funded safety net programs.

Budget Request

CDC's FY 2019 request of **$152,310,000** for STIs is $1,034,337 above the FY 2018 Annualized CR level. With substantial increases in the rates of STIs in 2016, CDC will continue to conduct STI surveillance and support states to conduct STI prevention and control activities, such as contact tracing. At the FY 2019 requested level, public health programs will continue to support Disease Intervention Specialist (DIS) follow-up and response to outbreaks. This funding level will also support training and educational materials for healthcare professionals, and studies to translate STI research to practice and to improve program delivery. CDC will continue to focus efforts on maintaining STI control within the United States.

Key STI Prevention and Control Activities

Surveillance: Assess the Burden and Outcomes of STIs in the United States

In FY 2019, public health programs will conduct and report county-level surveillance of four reportable STIs (i.e., syphilis, gonorrhea, chlamydia, and chancroid) following strict data and confidentiality guidelines. STI programs will maximize use of surveillance data to:

- Monitor STI trends to improve our understanding of how STIs spread throughout the community, so CDC and its partners can implement high impact prevention and control strategies
- Implement prevention and control programs
- Improve program management and resource allocation
- Understand burden and outcomes
- Estimate costs associated with STIs
- Evaluate if STIs are being treated appropriately, which is especially important for preventing the spread of antibiotic resistant gonorrhea and reducing congenital syphilis
- Examine complications and manifestations of STIs, such as ocular syphilis (syphilis of the eye), which is increasing at a faster rate than overall syphilis and can cause vision problems or blindness

Service: Defend Against the Spread of STIs and Ensure Americans Get the STI Screening and Treatment They Need

CDC and its funded STI programs will support staff in state and local public health agencies, including Disease Investigators. No other entities conduct these community services, including:

- Conducting contact tracing to identify and treat partners exposed to STIs
- Identifying opportunities to address increasing STI cases, such as developing a standardized congenital syphilis quality assurance review process in a high risk state in 2017
- Providing outreach services, which can include non-reimbursable STI/HIV testing of individuals likely to be infected in non-clinical settings, to control the spread of disease in the community
- Identifying those who may benefit from HIV pre-exposure prophylaxis (PrEP) and connecting them with clinical and community resources
- Linking HIV patients seeking STI services to HIV treatment and care
- Containing outbreaks, like the Scott County, Indiana HIV outbreak in 2015 to which 50 STI Disease Investigators from other localities responded and successfully halted the outbreak
- Protecting Americans from STI and other public health emergencies as they arise by using the unique skills of STI Disease Investigators, who have been deployed in the past to address Zika, Ebola, influenza, anthrax, and SARS

CDC will fund the National Network of STD Clinical Prevention Training Centers (NNPTCs), to ensure that public and private healthcare providers have the most up-to-date clinical science for the screening and treatment of STIs. Many U.S. healthcare workers have limited experience with diagnosing and treating STIs. To increase STI knowledge among clinicians, NNPTCs offer a variety of courses in both web-based and in-person formats. In 2016 alone, NNPTCs provided over 500 courses, trained 27,500 clinicians, and conducted over 570 one-on-one clinical consultations to providers about complex STI cases.

CDC will update its widely utilized, evidence-based STD Treatment Guidelines. Visitors to CDC's website have viewed CDC's 2015 STD Treatment Guidelines more than 7.7 million times since CDC released them. Disease Investigators will continue to increase providers' awareness of CDC's STD Treatment Guidelines and the STI burden in their respective communities. CDC will also ensure that providers have access to recommended medications—such as injectable benzathine penicillin, the primary treatment for most syphilis and the only recommended treatment for pregnant women with syphilis to prevent congenital syphilis. In partnership with the NNPTCs, CDC will continue to educate physicians about CDC's recommended gonorrhea treatment, which helps to protect Americans from gonorrhea's increasing antibiotic resistance. In 2016, physicians prescribed CDC's recommended treatment for 86% of gonorrhea cases.

Science: Facilitate Diagnostic and Medical Advances

CDC will continue to expand its one-of-a-kind syphilis and gonorrhea laboratory sample repository. CDC and other federal agencies, academic researchers, and industry use this unique repository to test new diagnostics and treatments, including vaccines. CDCs STI lab will work on advancing more effective and efficient responses to syphilis, such as a rapid syphilis point of care test. This assessment of new tests and medicines is also urgently needed to prevent the threat of untreatable gonorrhea. CDC's STI lab and its partners continue genetic work on gonorrhea. To date, CDC has sequenced over 3,000 genomes for gonorrhea with different resistance profiles, and have placed them in public databases that the scientific community can access. The CDC STI laboratory will continue serve as a resource for state and local health departments in STI outbreak investigations.

Tuberculosis Budget Request

CDC is the lead agency for eliminating tuberculosis in the United States, and is a global leader in the science of TB elimination. CDC is dedicated to science, surveillance, and service by supporting health departments across the nation, in larger cities, Washington D.C., Puerto Rico, the Virgin Islands, and other US territories to:

- Investigate and report every case of TB disease;
- Identify contacts and provide treatment to prevent future TB cases;
- Genotype TB bacteria and test for drug resistance; and
- Ensure provision of medical care, laboratory testing, and other services to achieve complete cure of TB patients, which halts further transmission.

The United States has one of the lowest TB rates in the world due to an aggressive strategy of supporting prevention, control, laboratory services, research, and training at state, local, and territorial health departments. CDC is also the only U.S. agency that conducts domestic field-based clinical and operational research on TB. A recent CDC study found that, over a 20 year period, U.S. TB control efforts prevented as many as 319,000 cases of TB and saved up to $14.5 billion, including costs from TB deaths.[12]

However, the rate at which the number of TB cases is declining has stalled. After two decades of annual declines, TB incidence in the United States has leveled off at approximately 2.9 new cases per 100,000 persons, or a total of 9,272 cases in 2016.

Eighty-six percent of U.S. TB cases result from reactivated latent TB infection, which has no symptoms and cannot be transmitted. Without treatment, about 5-10% of LTBI cases will develop into TB disease, often years later. CDC estimates that up to 13 million people in the United States have latent TB infection. The remaining 14% of U.S. TB disease cases result from recent exposure to someone who is actively sick with TB. Eliminating TB in the United States requires increasing testing and treatment among people who are at high risk for having latent TB infection, aggressive case finding and treatment for active TB disease, and research on regimens and diagnostic tools to improve both.

Eliminating TB in the United States requires efforts incorporating testing and treatment for latent TB infection into public and private health systems, such as:

- establishing a surveillance system for LTBI;
- expanding targeted testing for LTBI in at-risk populations;
- increasing the use of new short-course treatment regimens for LTBI;
- engaging affected communities and medical providers who serve at-risk communities; and
- increasing public health staffing for implementation and oversight.

[12] These numbers represent the outer limits of the ranges of cases and costs averted, as published in Tuberculosis Contact Investigations — United States, 2003–2012 (Young et. al., MMWR, 2016). Available at: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6450a1.htm CDC has changed the dollar value of costs averted from TB control from $6.7 billion to $14.5 billion to reflect costs averted due to deaths with TB disease.

Budget Request

CDC's FY 2019 request of **$142,256,000** for TB is $966,060 above the FY 2018 Annualized CR level. At this funding level, CDC will support states to conduct TB surveillance, oversee the medical and public health management of persons with TB and contact tracing. The funding requested will support training healthcare professionals, studies to improve TB treatment, diagnostic tools, and program delivery.

Key Tuberculosis Activities

Prevent new cases of TB

Upon request, CDC provides technical assistance and, if available, supplemental funding to health departments that need more capacity to conduct contact investigations. Investigations focus on controlling TB transmission by locating and evaluating anyone who has had prolonged contact with a person who had active TB. Currently, TB programs treat about 400,000 people with latent TB infection every year; however, these programs have only limited reach. With a better TB test and shorter regimen for treating infection, other primary care providers are starting to offer latent TB testing and treatment. CDC is working with these new partners to evaluate ways to better serve people at high risk for developing TB disease. CDC is also working with professional associations and other groups to explore ways to introduce testing beyond public health departments. To address the remaining 14% of U.S. TB cases due to recent transmission, upon request, CDC provides on-site assistance to communities experiencing outbreaks. In 2017, CDC provided on-site assistance for an outbreak among persons experiencing homelessness, and multi-drug resistant TB among people attending an adult daycare center.

Ensure the provision of medical care, laboratory testing, and other services to cure TB patients

CDC will continue to fund Centers of Excellence (COEs).[13] Given the low incidence of TB disease in the United States, few U.S. healthcare workers have encountered TB disease in their medical training. Misdiagnosis and failure to treat TB results in transmission of disease in families and communities and months of debilitating illness for the patient. To counter this, the COEs provide training (both in person and via distance learning) and technical assistance to increase human resource development in TB programs; TB educational materials; and medical consultation for healthcare professionals treating TB patients, particularly those with complex or drug-resistant cases. From 2014-2017, the COEs provided over 4,320 hours of training to 42,856 participants, and provided 14,971 medical consultations to providers with TB patients.

As the nation's leader in field-based TB research, CDC's TB Trials Consortium (TBTC) conducts clinical trials that build the evidence base for guidelines used all over the world for diagnosing, preventing, and treating TB. CDC's top priority is to make TB treatment regimens shorter and less toxic, especially for children and people with other health conditions such as diabetes or cancer. The existing regimen takes six to nine months with four different antibiotics, and requires frequent laboratory tests to monitor patients' side effects, and to make sure the medicine is working. In 2017, CDC-funded studies concluded that a new LTBI treatment—12 weekly doses of isoniazid and rifapentine (3HP)—is as effective as 9 months of isoniazid. Use of the shorter LTBI regimen results in over 75 percent of people completing treatment, as opposed to a 30-64 percent completion rate for the standard treatment. This innovation will help the U.S. move closer toward TB elimination because completing treatment for LTBI cuts the risk of progression to active TB disease by 90 percent. CDC also enrolled over 1,000 participants in a clinical trial to evaluate a regimen that will shorten treatment for TB disease to four months. CDC funds the TB Epidemiologic Studies Consortium (TBESC), which applies epidemiologic, behavioral, economic, laboratory, and operational research for better approaches to TB control in communities. Currently, TBESC study sites are working with providers in community health centers to expand testing and treatment for latent TB infection in people at risk for developing TB disease.

[13] Formerly Regional Training and Medical Consultation Centers.

CDC's TB laboratory serves as the National Tuberculosis Reference Laboratory and as a source of innovation, including development of advanced molecular detection (AMD) methods. In 2017, CDC increased the number of Molecular Detection of Drug Resistance tests that it provides to health departments, allowing the rapid detection of MDR TB that is essential for treating and controlling TB. The TB lab also increased its ability to identify matching cases of TB disease using whole genome sequencing, providing an ever-clearer picture of locations where transmission of active TB disease has occurred. To identify drug resistant TB and understand how drug resistance can develop during treatment, CDC conducted whole genome sequencing for more than 1,000 isolates of M. tuberculosis. To build capacity to conduct whole genome sequencing for isolates from all newly-diagnosed U.S. TB patients, CDC established the National Tuberculosis Molecular Surveillance Center in Michigan.

Stop transmission and prevent drug resistance

CDC has the knowledge and tools to keep Americans safe and protect America's health, safety, and security by promptly and effectively treating TB disease and preventing drug-resistant and multidrug-resistant TB, which can be extremely costly. Currently, approximately 1% of U.S. TB cases are multi-drug resistant, and each case is expensive to treat and treatment can be difficult for the patient to tolerate. Accordingly, CDC strives to prevent drug resistant TB from developing in the first place. It is critical to ensure that TB treatment is completed without interruption. TB drug shortages have affected more than 80% of TB control programs. CDC has established a small commercial stockpile of TB drugs to ensure that patient treatment will not be interrupted in the event of a nationwide shortage of critical TB drugs. In 2017, CDC and TB programs established a system to ensure that, if not dispensed for emergency use before their expiration date, TB stockpile drugs are distributed to TB patients in high-burden areas of the United States. In 2017, CDC began enrolling participants in a clinical trial to compare the effectiveness of directly observed therapy (DOT) delivered in person and by video cameras (the video method is potentially more efficient and cost saving), and developing more sophisticated systems for surveillance and laboratory testing for MDR TB. CDC will continue to refine these and other innovative activities to prevent the spread of drug resistant TB in FY 2019.

CDC-Wide HIV/AIDS Funding

Fiscal Year	Domestic HIV/AIDS Prevention and Research (Infectious Disease)	Other Domestic HIV Prevention	Global HIV/AIDS Program[1]	CDC-Wide HIV Total
2006[1]	$651,657,000	$64,008,000	$122,560,000	$838,225,000
2007	$695,454,000	$62,802,000	$120,985,000	$879,241,000
2008[2]	$691,860,000	$40,000,000	$118,863,000	$850,723,000
2009	$691,860,000	$40,000,000	$118,863,000	$850,723,000
2010[3]	$799,270,000	$0	$118,961,000	$918,231,000
2011	$800,445,000	$0	$118,741,000	$919,186,000
2012[4]	$822,633,000	$0	$131,190,000	$953,823,000
2013	$768,635,000	$0	$125,254,000	$893,889,000
2014	$786,712,000	$0	$128,420,000	$915,132,000
2015	$786,712,000	$0	$128,421,000	$915,133,000
2016 Enacted	$788,712,000	$0	$128,421,000	$917,133,000
2017 Final	$786,868,000	$0	$128,120,000	$914,988,000
2018 Annualized CR	$783,356,000	$0	$127,549,000	$910,905,000
2019 President's Budget	$748,712,000	$0	$69,547,000	$818,259,000

[1]For 2006 and 2007, CDC-wide HIV/AIDS funding was comprised of activities conducted by the Coordinating Center for Infectious Diseases [including the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP)], the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), and the National Center for Birth Defects and Developmental Disabilities (NCBDDD). Funding for NCCDPHP and NCBDDD are shown in the "Other Domestic HIV Prevention" column.

[2]In FY 2010, funds supporting hemophilia/HIV activities in NCBDDD and funds supporting oral health/HIV, BRFSS/HIV, and Safe Motherhood/HIV activities in NCCDPHP—previously displayed in the "Other Domestic HIV Prevention" column—were removed from the CDC-Wide HIV/AIDS table. FY 2008 and FY 2009 figures were adjusted to become comparable to FY 2010 figures.

[3]In FY 2012, HIV prevention activities in the Division of Adolescent and School Health were transferred to NCHHSTP. FY 2010 and FY 2011 funding levels have been made comparable to the budget realignment, reflecting a transfer of $40,000,000 from Chronic Disease Prevention and Health Promotion to Domestic HIV/AIDS Prevention and Research. Funding levels prior to FY 2010 have not been made comparable to the budget realignment. FY 2010 funding also includes a $30,400,000 Obamacare/PPHF allocation.

[4]FY 2012 and FY 2013 are comparably adjusted to reflect the FY 2014 BSS transfer to implement the Working Capital Fund. Funding levels prior to FY 2012 have not been made comparable to the FY 2016 request.

State Table: Integrated HIV Prevention and Surveillance Funding [1,2,3]

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$3,510,424	$4,807,661	$4,519,201	$(288,460)
Alaska	$755,416	$1,033,859	$971,827	$(62,032)
Arizona	$3,511,495	$5,667,607	$5,327,551	$(340,056)
Arkansas	$1,509,796	$2,084,561	$1,959,487	$(125,074)
California	$18,842,258	$22,176,701	$20,846,099	$(1,330,602)
Colorado	$5,094,144	$4,346,536	$4,085,744	$(260,792)
Connecticut	$3,881,296	$3,974,204	$3,735,752	$(238,452)
Delaware	$912,288	$1,353,327	$1,272,127	$(81,200)
Florida	$34,796,817	$38,904,420	$36,570,155	$(2,334,265)
Georgia	$4,760,426	$17,697,096	$16,635,270	$(1,061,826)
Hawaii	$755,416	$1,176,489	$1,105,900	$(70,589)
Idaho	$755,416	$1,054,018	$990,777	$(63,241)
Illinois	$2,510,205	$5,037,850	$4,735,579	$(302,271)
Indiana	$2,901,922	$4,006,661	$3,766,261	$(240,400)
Iowa	$753,824	$1,121,114	$1,053,847	$(67,267)
Kansas	$805,041	$1,233,569	$1,159,555	$(74,014)
Kentucky	$1,360,872	$2,591,201	$2,435,729	$(155,472)
Louisiana	$7,925,031	$7,244,982	$6,810,283	$(434,699)
Maine	$755,416	$1,075,537	$1,011,005	$(64,532)
Maryland	$5,680,222	$7,887,182	$7,413,951	$(473,231)
Massachusetts	$5,009,179	$7,360,637	$6,918,999	$(441,638)
Michigan	$5,491,340	$5,754,161	$5,408,911	$(345,250)
Minnesota	$1,881,723	$2,985,919	$2,806,764	$(179,155)
Mississippi	$3,011,679	$3,508,229	$3,297,735	$(210,494)
Missouri	$3,965,810	$4,477,487	$4,208,838	$(268,649)
Montana	$748,419	$1,029,059	$967,315	$(61,744)
Nebraska	$755,416	$1,103,683	$1,037,462	$(66,221)
Nevada	$2,085,073	$3,266,705	$3,070,703	$(196,002)
New Hampshire	$755,416	$1,064,375	$1,000,513	$(63,862)
New Jersey	$13,587,493	$13,492,554	$12,683,001	$(809,553)
New Mexico	$755,416	$1,306,349	$1,227,968	$(78,381)
New York	$14,232,240	$13,964,488	$13,126,619	$(837,869)
North Carolina	$8,708,811	$10,962,336	$10,304,596	$(657,740)
North Dakota	$711,602	$1,000,000	$940,000	$(60,000)
Ohio	$5,754,397	$7,602,765	$7,146,599	$(456,166)
Oklahoma	$1,442,856	$2,254,312	$2,119,053	$(135,259)
Oregon	$1,494,366	$2,500,170	$2,350,160	$(150,010)
Pennsylvania	$5,015,820	$6,539,491	$6,147,122	$(392,369)
Rhode Island	$753,824	$1,116,567	$1,049,573	$(66,994)
South Carolina	$5,317,997	$6,116,420	$5,749,435	$(366,985)
South Dakota	$755,416	$1,026,482	$964,893	$(61,589)
Tennessee	$6,401,384	$6,210,436	$5,837,810	$(372,626)
Texas	$16,222,324	$20,772,434	$19,526,088	$(1,246,346)
Utah	$750,000	$1,151,670	$1,082,570	$(69,100)
Vermont	$755,416	$999,999	$939,999	$(60,000)
Virginia	$8,582,421	$8,281,767	$7,784,861	$(496,906)
Washington	$3,122,915	$4,656,564	$4,377,170	$(279,394)
West Virginia	$755,416	$1,097,368	$1,031,526	$(65,842)
Wisconsin	$1,499,892	$2,384,516	$2,241,445	$(143,071)
Wyoming	$750,000	$1,015,468	$954,540	$(60,928)

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Cities				
Baltimore5	$7,738,760	$4,237,790	$3,983,523	$(254,267)
Chicago	$11,526,952	$8,307,883	$7,809,410	$(498,473)
Fulton Co., GA4	$8,037,328	$0	$0	$-0
Houston	$9,657,693	$8,671,634	$8,151,336	$(520,298)
Los Angeles	$15,226,817	$17,950,095	$16,873,089	$(1,077,006)
New York City	$36,902,395	$35,204,237	$33,091,983	$(2,112,254)
Philadelphia	$6,886,819	$6,336,536	$5,956,344	$(380,192)
San Francisco	$7,696,708	$5,008,377	$4,707,874	$(300,503)
Washington, D.C.	$5,631,838	$5,835,119	$5,485,012	$(350,107)
Territories				
Puerto Rico	$6,588,527	$6,525,314	$6,133,795	$(391,519)
Virgin Islands	$690,311	$1,029,968	$968,170	$(61,798)
Subtotal States	$230,548,494	$279,476,986	$262,708,368	$(16,768,618)
Subtotal Cities	$101,608,602	$91,551,671	$86,058,571	$(5,493,100)
Subtotal Territories	$7,278,838	$7,555,282	$7,101,965	$(453,317)
Total	$339,435,935	$378,583,939	$355,868,904	$(22,715,035)

[1] CFDA NUMBER: 93-940 [Discretionary]

[2] In addition to the city and state amounts listed in the above table, an additional $19M was and will be distributed to the health departments each fiscal year through a competitive process based on availability of funds.

[3] This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local and territorial awardees). For a more comprehensive view of grant and cooperative agreement funding to awardees by jurisdiction, visit http://www.cdc.gov/FundingProfiles/

[4] Fulton Co, GA funding is included in State of Georgia funding for FY 2018 and 2019

[5] Baltimore funding does not include surveillance funding for FY 2018 and 2019

State Table: Sexually Transmitted Disease Prevention[1,2,3,4]

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$1,808,579	$1,808,579	$1,808,579	$0
Alaska	$356,847	$356,847	$356,847	$0
Arizona	$1,578,999	$1,578,999	$1,578,999	$0
Arkansas	$1,130,049	$1,130,049	$1,130,049	$0
California	$5,836,981	$5,836,981	$5,836,981	$0
Colorado	$1,190,389	$1,190,389	$1,190,389	$0
Connecticut	$819,053	$819,053	$819,053	$0
Delaware	$363,247	$363,247	$363,247	$0
Florida	$4,675,047	$4,675,047	$4,675,047	$0
Georgia	$3,500,657	$3,500,657	$3,500,657	$0
Hawaii	$381,145	$381,145	$381,145	$0
Idaho	$335,858	$335,858	$335,858	$0
Illinois	$2,285,445	$2,285,445	$2,285,445	$0
Indiana	$1,672,168	$1,672,168	$1,672,168	$0
Iowa	$687,312	$687,312	$687,312	$0
Kansas	$720,473	$720,473	$720,473	$0
Kentucky	$1,051,469	$1,051,469	$1,051,469	$0
Louisiana	$2,135,770	$2,135,770	$2,135,770	$0
Maine	$264,881	$264,881	$264,881	$0
Maryland	$1,304,803	$1,304,803	$1,304,803	$0
Massachusetts	$1,512,271	$1,512,271	$1,512,271	$0
Michigan	$2,665,437	$2,665,437	$2,665,437	$0
Minnesota	$1,126,351	$1,126,351	$1,126,351	$0
Mississippi	$1,354,304	$1,354,304	$1,354,304	$0
Missouri	$1,768,676	$1,768,676	$1,768,676	$0
Montana	$238,743	$238,743	$238,743	$0
Nebraska	$445,745	$445,745	$445,745	$0
Nevada	$757,689	$757,689	$757,689	$0
New Hampshire	$265,925	$265,925	$265,925	$0
New Jersey	$2,520,219	$2,520,219	$2,520,219	$0
New Mexico	$644,701	$644,701	$644,701	$0
New York	$2,422,405	$2,422,405	$2,422,405	$0
North Carolina	$2,880,486	$2,880,486	$2,880,486	$0
North Dakota	$206,927	$206,927	$206,927	$0
Ohio	$3,187,952	$3,187,952	$3,187,952	$0
Oklahoma	$1,067,659	$1,067,659	$1,067,659	$0
Oregon	$852,179	$852,179	$852,179	$0
Pennsylvania	$2,126,567	$2,126,567	$2,126,567	$0
Rhode Island	$328,831	$328,831	$328,831	$0
South Carolina	$1,558,006	$1,558,006	$1,558,006	$0
South Dakota	$245,134	$245,134	$245,134	$0
Tennessee	$2,039,811	$2,039,811	$2,039,811	$0
Texas	$6,745,247	$6,745,247	$6,745,247	$0
Utah	$548,601	$548,601	$548,601	$0
Vermont	$191,996	$191,996	$191,996	$0
Virginia	$2,034,589	$2,034,589	$2,034,589	$0
Washington	$2,006,420	$2,006,420	$2,006,420	$0
West Virginia	$553,428	$553,428	$553,428	$0
Wisconsin	$1,242,063	$1,242,063	$1,242,063	$0
Wyoming	$207,773	$207,773	$207,773	$0

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Cities				$0
Baltimore	$1,159,003	$1,159,003	$1,159,003	$0
Chicago	$2,026,636	$2,026,636	$2,026,636	$0
Los Angeles	$3,188,811	$3,188,811	$3,188,811	$0
New York City	$5,564,571	$5,564,571	$5,564,571	$0
Philadelphia	$1,988,557	$1,988,557	$1,988,557	$0
San Francisco	$1,192,830	$1,192,830	$1,192,830	$0
Washington, D.C.	$986,438	$986,438	$986,438	$0
Territories				$0
Puerto Rico	$1,105,419	$1,105,419	$1,105,419	$0
Virgin Islands	$193,770	$193,770	$193,770	$0
				$0
Subtotal States	**$75,845,307**	**$75,845,307**	**$75,845,307**	**$0**
Subtotal Cities	**$16,106,846**	**$16,106,846**	**$16,106,846**	**$0**
Subtotal Territories	**$1,299,189**	**$1,299,189**	**$1,299,189**	**$0**
Total	**$93,251,342**	**$93,251,342**	**$93,251,342**	**$0**

[1]CFDA NUMBER: 93-977 [Discretionary]

[2]Amounts reflect new assistance and include HIV/STD coinfection funds. Amounts do not include funding under Direct Assistance, which is a financial assistance mechanism primarily used to support payroll and travel expenses of CDC employees assigned to state, tribal, local, and territorial health agencies that are recipients of grants and cooperative agreements.

[3]Amounts do not include Gonococcal Isolate Surveillance Project awards.

[4]This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial awardees). For a more comprehensive view of grant and cooperative agreement funding to awardees by jurisdiction, visit http://wwwn.cdc.gov/FundingProfiles/FundingProfilesRIA/.

State Table: TB Prevention and Control[1,2,3]

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$1,074,517	$1,074,517	$1,074,517	$0
Alaska	$643,455	$643,455	$643,455	$0
Arizona	$1,530,338	$1,530,338	$1,530,338	$0
Arkansas	$586,622	$586,622	$586,622	$0
California	$8,509,985	$8,509,985	$8,509,985	$0
Colorado	$525,979	$525,979	$525,979	$0
Connecticut	$562,531	$562,531	$562,531	$0
Delaware	$171,448	$171,448	$171,448	$0
Florida	$5,117,786	$5,117,786	$5,117,786	$0
Georgia	$2,653,507	$2,653,507	$2,653,507	$0
Hawaii	$959,734	$959,734	$959,734	$0
Idaho	$176,074	$176,074	$176,074	$0
Illinois	$1,407,723	$1,407,723	$1,407,723	$0
Indiana	$784,984	$784,984	$784,984	$0
Iowa	$379,381	$379,381	$379,381	$0
Kansas	$401,680	$401,680	$401,680	$0
Kentucky	$587,916	$587,916	$587,916	$0
Louisiana	$950,239	$950,239	$950,239	$0
Maine	$202,173	$202,173	$202,173	$0
Maryland	$1,291,491	$1,291,491	$1,291,491	$0
Massachusetts	$1,725,659	$1,725,659	$1,725,659	$0
Michigan	$1,247,019	$1,247,019	$1,247,019	$0
Minnesota	$1,087,158	$1,087,158	$1,087,158	$0
Mississippi	$650,032	$650,032	$650,032	$0
Missouri	$668,136	$668,136	$668,136	$0
Montana	$183,422	$183,422	$183,422	$0
Nebraska	$263,303	$263,303	$263,303	$0
Nevada	$692,547	$692,547	$692,547	$0
New Hampshire	$168,856	$168,856	$168,856	$0
New Jersey	$2,210,861	$2,210,861	$2,210,861	$0
New Mexico	$375,603	$375,603	$375,603	$0
New York	$1,529,176	$1,529,176	$1,529,176	$0
North Carolina	$1,529,176	$1,529,176	$1,529,176	$0
North Dakota	$188,439	$188,439	$188,439	$0
Ohio	$1,126,874	$1,126,874	$1,126,874	$0
Oklahoma	$561,124	$561,124	$561,124	$0
Oregon	$600,440	$600,440	$600,440	$0
Pennsylvania	$929,051	$929,051	$929,051	$0
Rhode Island	$224,543	$224,543	$224,543	$0
South Carolina	$876,905	$876,905	$876,905	$0
South Dakota	$184,914	$184,914	$184,914	$0
Tennessee	$1,136,704	$1,136,704	$1,136,704	$0
Texas	$7,855,733	$7,855,733	$7,855,733	$0
Utah	$294,149	$294,149	$294,149	$0
Vermont	$159,573	$159,573	$159,573	$0
Virginia	$1,456,135	$1,456,135	$1,456,135	$0
Washington	$1,502,474	$1,502,474	$1,502,474	$0
West Virginia	$176,403	$176,403	$176,403	$0
Wisconsin	$632,702	$632,702	$632,702	$0
Wyoming	$153,606	$153,606	$153,606	$0

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Cities				$0
Baltimore	$179,096	$179,096	$179,096	$0
Chicago	$987,331	$987,331	$987,331	$0
Detroit	$0	$0	$0	$0
Houston	$1,670,160	$1,670,160	$1,670,160	$0
Los Angeles	$4,813,457	$4,813,457	$4,813,457	$0
New York City	$4,260,215	$4,260,215	$4,260,215	$0
Philadelphia	$652,219	$652,219	$652,219	$0
San Diego	$1,783,370	$1,783,370	$1,783,370	$0
San Francisco	$875,082	$875,082	$875,082	$0
Washington, D.C.	$297,854	$297,854	$297,854	$0
Territories				$0
Puerto Rico	$536,978	$536,978	$536,978	$0
Virgin Islands	$117,342	$117,342	$117,342	$0
Subtotal States	**$58,908,279**	**$58,908,279**	**$58,908,279**	**$0**
Subtotal Cities	**$15,518,784**	**$15,518,784**	**$15,518,784**	**$0**
Subtotal Territories	**$654,320**	**$654,320**	**$654,320**	**$0**
Total	**$75,081,383**	**$75,081,383**	**$75,081,383**	**$0**

[1]CFDA NUMBER: 93-116 [Discretionary]

[2]Amounts reflect new assistance and include HIV/TB coinfection funds. Amounts do not include funding under Direct Assistance.

[3]This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial awardees). For a more comprehensive view of grant and cooperative agreement funding to awardees by jurisdiction, visit http://wwwn.cdc.gov/FundingProfiles/FundingProfilesRIA/.

State Table: Viral Hepatitis Surveillance and Prevention[1]

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$125,000	$125,000	$125,000	$0
Alaska	$125,000	$125,000	$125,000	$0
Arizona	$125,000	$125,000	$125,000	$0
Arkansas	$126,000	$126,000	$126,000	$0
California	$133,000	$133,000	$133,000	$0
Colorado	$126,000	$126,000	$126,000	$0
Connecticut	$134,000	$134,000	$134,000	$0
Delaware	$88,000	$88,000	$88,000	$0
Florida	$549,000	$549,000	$549,000	$0
Georgia	$318,000	$318,000	$318,000	$0
Hawaii	$89,000	$89,000	$89,000	$0
Idaho	$65,000	$65,000	$65,000	$0
Illinois	$102,000	$102,000	$102,000	$0
Indiana	$283,000	$283,000	$283,000	$0
Iowa	$131,000	$131,000	$131,000	$0
Kansas	$0	$0	$0	$0
Kentucky	$317,000	$317,000	$317,000	$0
Louisiana	$354,000	$354,000	$354,000	$0
Maine	$98,000	$98,000	$98,000	$0
Maryland	$125,000	$125,000	$125,000	$0
Massachusetts	$712,000	$712,000	$712,000	$0
Michigan	$334,000	$334,000	$334,000	$0
Minnesota	$128,000	$128,000	$128,000	$0
Mississippi	$125,000	$125,000	$125,000	$0
Missouri	$125,000	$125,000	$125,000	$0
Montana	$40,000	$40,000	$40,000	$0
Nebraska	$99,000	$99,000	$99,000	$0
Nevada	$125,000	$125,000	$125,000	$0
New Hampshire	$126,000	$126,000	$126,000	$0
New Jersey	$372,000	$372,000	$372,000	$0
New Mexico	$105,000	$105,000	$105,000	$0
New York	$259,000	$259,000	$259,000	$0
North Carolina	$325,000	$325,000	$325,000	$0
North Dakota	$79,000	$79,000	$79,000	$0
Ohio	$303,000	$303,000	$303,000	$0
Oklahoma	$291,000	$291,000	$291,000	$0
Oregon	$131,000	$131,000	$131,000	$0
Pennsylvania	$133,000	$133,000	$133,000	$0
Rhode Island	$126,000	$126,000	$126,000	$0
South Carolina	$131,000	$131,000	$131,000	$0
South Dakota	$0	$0	$0	$0
Tennessee	$376,000	$376,000	$376,000	$0
Texas	$126,000	$126,000	$126,000	$0
Utah	$284,000	$284,000	$284,000	$0
Vermont	$82,000	$82,000	$82,000	$0
Virginia	$130,000	$130,000	$130,000	$0
Washington	$661,000	$661,000	$661,000	$0
West Virginia	$354,000	$354,000	$354,000	$0
Wisconsin	$126,000	$126,000	$126,000	$0
Wyoming	$86,000	$86,000	$86,000	$0

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Cities				$0
Chicago	$102,000	$102,000	$102,000	$0
New York City	$122,000	$122,000	$122,000	$0
Philadelphia	$283,000	$283,000	$283,000	$0
San Francisco	$260,000	$260,000	$260,000	$0
Washington, D.C.	$125,000	$125,000	$125,000	$0
				$0
Subtotal States	**$9,707,000**	**$9,707,000**	**$9,707,000**	**$0**
Subtotal Cities	**$892,000**	**$892,000**	**$892,000**	**$0**
Total	**$10,599,000**	**$10,599,000**	**$10,599,000**	**$0**

[1]This State Table is a snapshot of selected programs that fund 49 states (and in some cases local awardees).

EMERGING AND ZOONOTIC INFECTIOUS DISEASES

(dollars in millions)

	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority[1]	$523.704	$521.357	$508.328	-$13.029
PPHF	$52.000	$46.951†	$0.000	-$46.951
Total Request	**$575.704**	**$568.308**	**$508.328**	**-$59.980**
FTEs	1,245	1,230	1,230	0
Antibiotic Resistance – BA	$162.625	$161.893	$137.000	-$24.893
Vector-borne Diseases[2]	$37.023	$36.858	$49.459	+$12.601
Lyme Disease (non-add)	*$10.675*	*$10.627*	*$10.643*	*+$0.016*
Prion Disease	$5.986	$5.959	$0.000	-$5.959
Chronic Fatigue Syndrome	$5.387	$5.363	$0.000	-$5.363
Emerging Infectious Diseases[3]	$176.425	$175.639	$185.297	+$9.658
Food Safety	$53.878	$53.633	$54.000	+$0.367
National Healthcare Safety Network	$20.951	$20.857	$21.000	+$0.143
Quarantine	$31.498	$31.358	$31.572	+$0.214
Federal Isolation and Quarantine (non-add)	*N/A*	*N/A*	*$1.000*	*+$1.000*
Advanced Molecular Detection	$29.930	$29.796	$30.000	+$0.204
Epidemiology and Laboratory Capacity (PPHF)	$40.000	$36.116†	N/A	N/A
Healthcare-Associated Infections (PPHF)	$12.000	$10.835†	N/A	N/A

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

[1] FY 2017 Operating Level and FY 2018 President's Budget amounts are comparably adjusted to reflect $8 million movement from Lab Safety and Quality in Emerging and Zoonotic Infectious Diseases account. The Lab Safety and Quality funding supports the Office of the Associate Director for Laboratory Science and Safety; this Office supports lab safety and quality activities throughout the agency and does not functionally sit within NCEZID. Thus, this funding would be more appropriately aligned with other laboratory safety funding outside of NCEZID. CDC proposes that the funding be moved to PHSS—retaining the budget line name of Lab Safety and Quality. This change will not affect the activities supported by this funding.

[2] FY 2017 Operating Level Vector-borne Diseases amount is comparably adjusted to reflect movement from Lyme Disease funding.

[3] FY 2017 Operating Level and FY 2018 President's Budget Emerging Infectious Diseases amounts are comparably adjusted to reflect $30 million movement from All Other Infectious Diseases line.

Enabling Legislation Citation: PHSA §§ 252, 264, 301, 304, 307, 308(d), 310, 311, 317, 317P, 317R, 317S, 319, 319D, 319E*, 319F, 319G, 321, 322, 325, 327, 352, 353, 361–369, 1102, Title XVII*, 2821*; P.L. 96–517; P.L. 111-5; Immigration and Nationality Act §§ 212, 232 (8 U.S.C. 1182, 8 U.S.C. 1222, 8 U.S.C. 1252)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Contracts, and Competitive Grants/Cooperative Agreements

CDC is the Common Defense of the Country against public health threats by preventing and controlling a wide range of infectious diseases, from anthrax and Ebola, to Salmonella food poisoning and Zika. CDC's world-class scientists, researchers, laboratories, and emergency responders protect America's health, safety, and security by:

- Reducing illness and death associated with emerging, reemerging, and zoonotic infectious diseases, and
- Protecting people against unintentional or intentional spread of infectious diseases

CDC is home to many of the world's leading experts and laboratories in infectious disease prevention and control. CDC's experts provide rapid epidemiological and laboratory support to states and foreign ministries of

health during outbreaks of infectious disease. CDC's unique scientific expertise includes the ability to detect and track a broad range of microbes and respond to disease threats from many different pathogens, such as yellow fever in Angola and Brazil, Zika in the western hemisphere, emerging and resistant infections like *Candida auris* and carbapenemase-producing *Enterobacteriaceae* pathogens (e.g., CRE) that can lead to resistance, and numerous foodborne outbreaks around the country. Through specialized surveillance systems that serve as early warning systems and rapid response capability, CDC's experts detect and protect the public from both well-known infectious diseases and less familiar, but equally dangerous threats. CDC's unique laboratories are a critical asset that help detect and identify disease, provide early warning for emerging or changing germs, and serve as vital reference laboratories for the United States and the world.

CDC's FY 2019 request of **$508,328,000** for Emerging and Zoonotic Infectious Diseases is $59,980,060 below the FY 2018 Annualized CR level. This level includes the proposed reductions and the Prion Disease and Chronic Fatigue Syndrome (CFS) eliminations from the FY 2018 President's Budget request.

Prion Disease

Prion diseases are a group of rare brain diseases affecting humans and animals that are uniformly fatal. Prion activities have been proposed for elimination to focus on surveillance and monitoring activities on a broader range of high consequence pathogens and emerging diseases. Public health preventive measures recently instituted by the USDA will further reduce the risk of exposure to the U.S. population from Prion diseases. NIH also supports research on Prion diseases.

Chronic Fatigue Syndrome

CFS affects between one and four million people in the United States. CDC's CFS program works with states and experienced clinicians to develop tools to gather and analyze surveillance data and to educate clinicians and the public on the results of evidence-based studies. NIH has been funded to conduct biomedical research on CFS. In FY 2019, CFS activities are proposed for elimination, prioritizing funding to programs that support a broad range of diseases to maximize effectiveness in this limited-resource environment.

NCEZID

BY THE NUMBERS…

- **>800** – pathogens the National Center for Emerging and Zoonotic Diseases (NCEZID) protects against including foodborne, waterborne, and fungal infections; deadly diseases like Ebola; bioterror threats like anthrax; vector-borne infections like Zika and Lyme; and illnesses spread in healthcare settings and drug-resistant threats.

- **>200,000** – Laboratory samples tested in 2017 to assist state health departments and other federal agencies with diagnoses and essential information about dangerous bacteria and viruses.

- **23** – Epi-aids (short-term epidemiologic assistance) in FY 2017 at the request of a public health authority facing an urgent public health problem, including a multi-state investigation of Seoul virus infections ultimately linked to rat facilities and support for Madagascar during a recent plague outbreak.

- **$300** million – Awarded to state, local, and territorial health departments through the Epidemiology and Laboratory Capacity (ELC) cooperative agreement in 2017, strengthening the ability of domestic health departments to respond to infectious disease threats.[1]

- **270,000** – Foodborne illnesses prevented, and $500 million dollars saved, every year by PulseNet, which uses whole genome sequencing to find clusters of diseases that might represent unrecognized outbreaks, allowing investigators to find the source, alert the public sooner, and identify gaps in our food safety systems.[2]

- **>85** - Contact investigations coordinated in 2017 to alert travelers about potential exposures to infectious diseases and to advise on appropriate steps to take to protect themselves.

- **>50** – New diagnostic tests for rare and deadly pathogens developed in the last three years, including a new molecular test for detecting the rabies virus that is more accurate and faster than other currently available test.

- **7 regional labs, 1 National Tuberculosis Molecular Surveillance Center, and 56 state and local labs** – AR Laboratory Network labs established to close the gap between local capabilities and data needed to combat antibiotic resistance.

References:

[1] Division of Preparedness and Emerging Infections (DPEI)- "Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) Cooperative Agreement". (2017, August 02). https://www.cdc.gov/ncezid/dpei/epidemiology-laboratory-capacity.html

[2] Scharff, R. L., Besser, J., Sharp, D. J., Jones, T. F., Peter, G. S., & Hedberg, C. W. (2016, May). An Economic Evaluation of PulseNet: A Network for Foodborne Disease Surveillance. https://www.ncbi.nlm.nih.gov/pubmed/26993535/

[3] Antibiotic / Antimicrobial Resistance. (2017, November 28). Antibiotic Resistance Lab Network. https://www.cdc.gov/drugresistance/solutions-initiative/ar-lab-networks.html

Emerging and Zoonotic Infectious Diseases Funding History	
Fiscal Year	Dollars (in millions)
2015 (BA)	$352.990
2015 (PPHF)	$52.000
2016 (BA)	$530.228
2016 (PPHF)	$52.000
2017 Final (BA)	$523.704
2017 Final (PPHF)	$52.000
2018 Annualized CR (BA)	$521.357
2018 Annualized CR (PPHF)†	$46.951
2019 President's Budget (BA)	$508.328
2019 President's Budget (PPHF)	$0.000

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

Vector-borne Diseases Budget Request

The United States is increasingly vulnerable to vector-borne disease threats occurring within and outside our borders. Vector-borne diseases transmitted by ticks, mosquitoes, fleas, and other insects account for 17% of the estimated global burden of all infectious diseases. In the United States, the most common vector-borne diseases causing regular outbreaks include mosquito-borne West Nile and dengue viruses; tickborne Lyme disease and Rocky Mountain spotted fever; and flea-borne plague. More vector-borne diseases continue to be identified: in the last decade alone, five new tickborne pathogens were identified in the United States.

The emergence and spread of the Zika virus is the latest and most notable vector-borne threat. Zika virus has spread to 64 countries and territories. It is the only mosquito-borne arbovirus known to be sexually transmitted and to cause a distinct pattern of birth defects called congenital Zika syndrome among fetuses and infants of women infected with Zika during pregnancy. As of December 5, 2017, 42,676 people living in the United States and its territories had evidence of being infected with Zika virus, 6,932 of whom were pregnant women. The primary vectors of Zika, Aedes aegypti and Aedes albopictus mosquitoes, are widespread throughout the United States and its territories and have been found in an increasing number of locations in the last decade. They are also the primary vectors for the other important vector-borne viruses worldwide, including dengue and chikungunya. Aedes aegypti also transmits yellow fever.

CDC's vector-borne diseases program is the focal point of our nation's capacity to detect, control, and prevent bacterial, rickettsial, and viral pathogens transmitted by ticks and insects. CDC's vector-borne scientists have deep expertise in entomology, microbiology, and public health that does not exist elsewhere. CDC experts provide technical assistance and support state, territorial, and local health departments directly during outbreak investigations; provide tools for outbreak preparedness and response; identify novel repellents and other prevention tools; and identify, improve, and deploy diagnostic tools and tests.

CDC's core vector-borne disease activities in FY 2017 included the following activities:

Developing and supporting laboratory capacity to rapidly diagnose vector-borne diseases

CDC supports domestic and international diagnostic laboratories by developing testing guidelines, distributing reagents and supplies, and performing confirmatory testing for difficult or complex cases. In addition, CDC develops new diagnostic methods to improve testing speed, accuracy, and reliability and provides training to domestic and international partners. For example, in FY 2017:

- CDC produced and shipped reagents to facilitate more than 800,000 tests to diagnose bacterial, viral, and rickettsial infections, worldwide.
- CDC produced and shipped reagents for Zika diagnostic testing to 44 countries and 51 states and territories, facilitating more than 1.4 million tests. Together with the Laboratory Response Network, more than 310,000 tests for Zika were performed since October 2015, including more than 205,000 tests performed by CDC laboratories.
- Prior to the Zika outbreak, CDC was the only public health laboratory capable of testing for Zika. CDC provided extensive technical assistance and support to states so that now 49 states, Washington, D.C., and Puerto Rico have this capacity.
- CDC continues to provide diagnostic support to states and territories, with local transmission in the continental United States reported as recently as December 7, 2017.

Developing innovative technologies

CDC develops and evaluates innovative technology that will protect against and control the spread of diseases from mosquitoes, ticks, and fleas. Recent innovations include:

- Advancements in Zika diagnostics: CDC supported the Zika Emergency Response through application for and receipt of Emergency Use Authorizations for two Zika tests: the Zika Trioplex Real-time RT-PCR and the IgM antibody assays. Before these assays were authorized for use, only CDC could test for Zika. CDC received authorization for use of these two assays for Zika within the first two months of standing up the Zika Emergency Operations Center, so that states would have access to assays to test for Zika themselves.
- Rickettsial diagnostic assays: CDC developed and received FDA clearance for the first Rickettsia spp. diagnostic assays for clinical specimens. Having FDA-cleared PCR assays at regional and state laboratories builds capacity and allows for more rapid detection of rickettsial DNA in patients with Rocky Mountain spotted fever (RMSF), epidemic typhus, and other rickettsial infections.
- Lyme Disease prevention tools: CDC is working with partners to test host-targeted Lyme disease prevention methods, including commercially-licensed rodent bait boxes.

Conducting surveillance to quickly catch cases of disease

Vector monitoring systems allow for national and state-based monitoring of specific vectors that pose risks for outbreaks, which can be used to inform vector control and management activities within states and localities.

CDC operates three vector-related surveillance systems:

1. **ArboNET**: the national surveillance system for arboviruses. ArboNET is implemented in all 50 states and supports activities including human case investigations, collection and testing of mosquitoes for the presence of arboviruses, and supporting standardized, reliable laboratory testing nationwide. In addition to human disease, ArboNET maintains data on arboviral infections among select blood donors, veterinary disease cases, mosquitoes, dead birds, and sentinel animals.
2. **MosquitoNET**: a web-based data system for participating states to report data on the presence of mosquitoes and the results of insecticide resistance testing. These data will be used to regularly update maps demonstrating where the most important mosquito and other arboviruses can be found throughout the United States and its territories.
3. **TickNET:** a collaborative public health effort that funds 22 states and local jurisdictions which fosters coordinated surveillance, research, education, and prevention of tickborne diseases. TickNET research activities include laboratory surveys, high-quality prevention trials, and pathogen discovery.

Responding quickly to outbreaks

CDC routinely provides broad-range scientific support and leadership as requested by states responding to vector-borne outbreaks. Support is provided to states in the areas of laboratory diagnosis, epidemiology and surveillance, vector surveillance and control, and health communications. In addition to the technical assistance provided to all states and territories through the Zika Emergency Response, more intensive support was provided to those that experience local Zika transmission (including Puerto Rico, U.S. Virgin Islands, American Samoa, Florida, Utah, and Texas).

In addition to playing a lead role in the Zika response, CDC also provided support for other outbreak investigations in FY 2017 including collaborating with Austin, Texas on an investigation of tickborne relapsing fever.

CDC also responded to a Global Outbreak Alert and Response Network (GOARN) request for support of a large-scale plague outbreak response in Madagascar. CDC collaborated with WHO and the Madagascar Ministry of Health in their response to over 1,000 reported plague cases (August 2017 through October 2017). CDC deployed subject matter experts in infection prevention and control, vector control, surveillance, border health, and plague to support the complex outbreak response that addressed an unusual presentation of type (pneumonic rather than bubonic), time (earlier in the year than usual), and location (urban rather than rural).

In addition, CDC continues to play a central role in responding to yellow fever epidemics in Africa and the Americas, and preparing for a potential shortage of yellow fever vaccine in the Americas. In 2016-2017, a large epidemic of yellow fever—one of the few vaccine-preventable arboviral diseases—affected Angola and the Democratic Republic of the Congo (DRC). When a vaccine supply shortage occurred, CDC experts provided advice to the WHO, and assisted WHO and the Ministry of Health of the DRC in rapidly implementing a campaign using one fifth of the standard dose (also known as fractional dosing).

In FY 2017, CDC provided funding to all 50 states, Washington D.C., three large cities, five territories, one county, and three countries to support activities that protect the health of Americans from vector-borne diseases. Critical work included epidemiologic surveillance and investigation of vector-borne diseases, improved mosquito control and monitoring, and strengthened laboratory capacity. Funding also supported participation in the U.S. Zika Pregnancy Registry which monitored pregnant women with Zika and their infants.

Budget Request

CDC's FY 2019 request of **$49,459,000** for vector-borne activities is $12,601,014 above the FY 2018 Annualized CR level. In FY 2019, the United States will remain susceptible to existing and new vector-borne disease threats such as Zika Virus. Therefore, the FY 2019 request will address critical needs in the nation's vector control system, by focusing on two primary goals:

CDC will continue to build comprehensive vector programs at the federal, state, and local levels to address threats such as Zika Virus. This work will include:

- Development of a skilled vector workforce that can respond to the full variety of pathogens and the vectors that transmit them
- Supporting a selection of states to expand their expertise in laboratory, case and outbreak investigation, and vector control that can identify and mobilize for action against existing and emerging threats

CDC will work to advance innovation and discovery in the areas of vector-borne diseases such as Zika Virus, including vector control and management. This work will include:

- Development of cutting edge diagnostic tools for fast and accurate detection of vector-borne infections
- Identification of new and emerging vector-borne diseases and increased understanding of the magnitude of existing vector-borne threats
- Conducting priority Research and Development (R&D) by government, universities, and industry to develop ways to monitor and prevent insecticide resistance and foster new vector control technologies

In FY 2019, CDC will provide enhanced support for up to nine states at the greatest risk for vector-borne disease outbreaks. Each vector program would include increasing state entomological expertise, as well as support for:

- Laboratory activities, including the ability to test for current and past vector-borne disease infections in people and the ability to test for vector-borne disease in mosquitoes and animals.
- Case and outbreak investigation activities, including the ability of healthcare providers and the community to recognize symptoms of vector-borne diseases, and the ability of the state to complete standard epidemiological investigations on suspected or confirmed vector-borne disease outbreaks.
- Vector control and management activities, including the ability to conduct vector surveillance and insecticide resistance testing, to collect and use data to make vector control decisions, and to conduct and evaluate routine vector control through an integrated pest management approach.

Through this work, and together with its partners, CDC will begin to build a sustained foundation to address the persistent threat of mosquito-borne and tickborne diseases.

Advanced Molecular Detection and Response to Infectious Disease Outbreaks Budget Request

The Advanced Molecular Detection (AMD) program introduces rapid technological innovation, such as genomic sequencing of pathogens, to allow for better prevention and control of infectious diseases. The past decade has witnessed revolutionary advances in certain technologies, particularly DNA sequencing ("next-generation sequencing", NGS or "whole-genome sequencing", WGS), bioinformatics (methods for analyzing the data), and related technologies.

CDC's AMD innovation and modernization program was established to bring these technologies into the U.S. public health system. The AMD program works with disease-specific programs throughout the agency, supporting adaptation of AMD technologies to public health applications as well as the piloting and early scale up of those applications, giving those programs a pathway to the implementation of AMD technologies within their fields. The AMD program also supports and manages the cross-cutting infrastructure to enable this, such as high-performance computing and bioinformatics support, and workforce development at CDC and in state and local health departments to prepare microbiologists and epidemiologists for the new era in technology.

Four years ago, CDC was behind in the adoption of these technologies; now CDC is a leader in many areas. AMD technologies incorporate newer, more powerful pathogen detection methods, often replacing more costly, time-consuming methods, many of which have been in use for the past 50–100 years. As a result of this transition, CDC programs are obtaining higher quality data, detecting outbreaks sooner, and responding more effectively—ultimately saving lives and reducing costs. Additionally, AMD technologies are helping to understand, characterize, and control antibiotic resistance and develop and target prevention measures, including vaccines.

Through AMD investments, CDC is seeing improvements in both public health outcomes and preparedness, applying AMD technologies in dozens of areas such as foodborne disease, influenza, antimicrobial resistance, hepatitis, pneumonia, and meningitis. Since FY 2015, AMD has been rolling genetic sequencing technologies out to state and local health departments, all of which have been funded to acquire the new technology. Examples of how AMD investments are being leveraged through CDC's programs include:

- **Foodborne Illness:** The first foodborne pathogen to transition to whole-genome sequencing (WGS) using AMD technologies was *Listeria*, which effects about 800 Americans a year and causes severe disease. Data from the first three years of monitoring have shown that WGS detects clusters of illness sooner, some of which would not have been detected at all by older methods, and links more outbreaks to specific foods, allowing for action to prevent future outbreaks. Following the successful piloting supported in part by the AMD program, WGS is now being rolled out for all foodborne pathogens, including *E. coli, Salmonella*, and *Campylobacter*, and to all states. With WGS now scaling up nationwide, the older technology ("PFGE") is being phased out, starting with *Listeria* in January 2018 and extending to the other pathogens by the end of the calendar year.

- **Influenza:** CDC's influenza program characterizes about 8,000 to 10,000 influenza isolates each year in order to determine which strains should go in the annual influenza vaccine. Processing these specimens previously took three weeks and involved a very labor-intensive procedure. With AMD support, the program has now switched to a "sequencing-first" approach, which takes a few days at most, is much more automated, and provides additional data made publicly available to world experts in real time. As a result, the twice yearly strain selection for the world's influenza vaccines is now based on better data, which could improve vaccine effectiveness and save lives.

- **Zika:** Before recognition of the emergence of Zika virus in Brazil, the AMD program was supporting the implementation of sequencing for two related pathogens, Chikungunya virus and dengue virus, in the

Americas. Within three weeks of receiving the first Zika virus-positive sample, a CDC-developed protocol for Zika virus testing was developed, validated, and shared with public health laboratories in the United States and Latin America. Had this AMD program-funded infrastructure not been in place at the time, this same process would have taken three to four months, delaying public health's ability to quickly diagnose Zika and target prevention and control strategies.

- **Hepatitis C:** The epidemic of opioid abuse is placing the United States at risk for epidemics of hepatitis C, which is quick to move into communities plagued by injection drug use. Previously, investigations of hepatitis C outbreaks were hampered by cumbersome laboratory methods to trace chains of transmission. Now, using AMD technologies, CDC has developed a high-throughput, low-cost method for doing this, and as of FY 2016, had begun working with several state health departments to implement the technology.

- **HIV:** As part of a January 2015 HIV outbreak investigation in southeastern Indiana linked to the opioid crisis, CDC scientists used AMD technologies to identify connections between infected people. Results of AMD analyses, made accessible in easy-to-interpret graphics, revealed how quickly HIV was spreading and how hepatitis C virus (HCV) had been infiltrating the community for an even longer period. These findings and tools helped public health officials direct resources to where they were needed most to prevent as many future infections as possible and to identify similar transmission clusters elsewhere in the United States. The AMD program is continuing to build on this system, enabling states to make use of genomic data to more effectively target interventions.

- **Improved efficiency:** CDC aims to transform public health agencies by incorporating advanced molecular technologies into routine public health practice. When comprehensively implemented, AMD technologies can be cheaper and faster to use. Unlike conventional technology, AMD technology allows for multiplexing, or sequencing of multiple samples at once, which can contribute significantly to reductions in the cost per specimen.

Budget Request

CDC's FY 2019 request of **$30,000,000** for Advanced Molecular Detection is $203,730 above the FY 2018 Annualized CR level. AMD is introducing cutting-edge technologies into public health that will fundamentally change the public health system and modernize the ability of CDC and state health departments to protect Americans' health.

In FY 2019, the AMD Program will focus on four key areas:

- **Roll-out of AMD technologies:** CDC continues to fund disease-specific projects to implement AMD protocols and technologies at CDC and at state and local health departments. CDC's AMD program collaborates with experts across CDC to ensure the United States has the infrastructure, including technology, needed to protect Americans from infectious disease threats. CDC's AMD program develops and pilots next-generation diagnostics and protocols with CDC and state and local public health laboratories. These tools are then leveraged by programs across CDC to be brought to scale in public health laboratories nationwide. Protocols and technologies will be made available in other areas once state health departments have gained experience with AMD technologies. The AMD program is continuing to modernize and improve operations at CDC laboratories to provide better, faster data for public health action.

- **Applying the technologies to other disease areas:** While current AMD investments have focused on high-impact areas, AMD technologies have the potential to transform a vast horizon of infectious

diseases in the future. This technology will almost certainly play a role in responding to the next emerging infectious disease threat—in providing the Common Defense for the Country against public health threats—as it has in recent outbreaks of Ebola virus, Zika virus, and *Candida auris*. With emerging infections, there will constantly be new priorities for application of AMD technologies.

- **Enhancing infrastructure:** Application of sequencing and related technologies requires access to such infrastructure as high-performance computing and expertise in certain specialized areas, including bioinformatics. The rapid increase in sequencing currently under way in state health departments will require expansion of existing services if the reliability and rapid turn-around-time of the system is to be maintained.

- **Workforce modernization:** Although AMD technologies carry great potential, sufficient laboratory and bioinformatics capacities and highly skilled staff are essential to extract and interpret the relevant information from the massive amounts of sequencing data. Training CDC scientists and state public health staff in methods for pathogen genetic sequencing, analysis, and interpretation is critical. One example is a Molecular Epidemiology training that the AMD program has offered for CDC and state epidemiologists.

In the past 10 years, next-generation sequencing and related technologies have advanced at an astounding pace—much faster, for example, than the rapid rate of advances in computer processing. This technologic revolution is showing no signs of slowing down, resulting in greater capacity, lower costs, and increased automation, all of which are opening opportunities both in the private sector and in public health. Continued investment to keep up with ongoing, rapid changes in physical technology and innovation of public health will be crucial to ensuring CDC's ability to take advantage of these advances and that it does not fall behind again. Continued investment will also ensure that there is ongoing, dedicated support for innovation both at CDC and at state and local public health laboratories.

Emerging Infectious Diseases and Emerging and Zoonotic Core Activities Budget Request

Protecting Americans from zoonotic and emerging infections—infections that have increased recently or are threatening to increase in the near future—involves a cascade of public health activities. These actions must occur at many levels (local, state, national, and international), because pathogens, diseases, and people move across borders. Ensuring capacity and working collaboratively at all levels is essential in protecting individuals from emerging and zoonotic infectious disease threats. CDC invests in building a public health system for infectious diseases at national, state, and local levels to:

- Create, support, and maintain disease tracking systems.
- Support modern and efficient laboratories with well-trained laboratory scientists.
- Prepare and equip outbreak investigation and response teams.
- Develop and apply tools for effective epidemiologic, statistical, analytic, policy, and communication approaches.
- Support an appropriately sized and competent public health workforce with deep expertise across a broad range of pathogens.

These cross-cutting activities serve as a critical underpinning for CDC's foundational capacities in epidemiology, laboratory, and surveillance activities for emerging and zoonotic infectious diseases.

The budget lines for Emerging Infectious Diseases and Emerging and Zoonotic Core Activities have been merged into a single Emerging Infectious Diseases line. Both of these budget lines support a variety of foundational activities and programs. The merging of these two lines allows for greater programmatic and scientific synergy and administrative efficiency. CDC combines the activities in its budget narrative under one sub header, as presented in the FY 2018 President's Budget.

In order to build national emerging infectious disease capacity, CDC will continue to invest in two flagship Cooperative Agreements in 2019: the Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) platform and the Emerging Infections Program (EIP). The ELC is a nationwide cooperative agreement supporting all 50 states, the six largest local health departments, and U.S. territories and affiliates. ELC focuses investments on building essential epidemiology and laboratory capabilities in all grantees while also providing targeted resources for issues of regional concern. Multiple CDC programs use the ELC platform to protect the public health and safety of the American people by supporting health departments to effectively detect, respond to, prevent, and control a wide range of known and emerging (or re-emerging) infectious diseases. In FY 2019, CDC will also continue to support the EIP—a network of 10 state public health departments (CA, CO, CT, GA, MD, MN, NM, NY, OR, and TN) and their academic partners which conduct disease surveillance, epidemiology studies, and prevention research.

Budget Request

CDC's FY 2019 request of **$185,297,000** for Emerging Infectious Diseases and Emerging and Zoonotic Core Activities is $9,657,920 above the FY 2018 Annualized CR level. At this funding level, CDC will continue supporting states in preparing for and responding to emerging and zoonotic health threats. This includes investments in two of CDC's flagship cooperative agreements: the Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) platform and the Emerging Infections Program (EIP).

CDC's Emerging Infectious Diseases and Emerging and Zoonotic Core Activities budget request includes a number of activities that support surveillance, laboratory, and prevention programs in multiple infectious disease areas. These areas include high-consequence pathogens (rare, but deadly pathogens such as anthrax and smallpox), emerging respiratory pathogens, preparedness and emerging infections, healthcare-associated infections, and adverse event outbreak response.

High-Consequence Pathogens

CDC conducts disease detection and control activities that protect the United States from dangerous viral, bacterial, and unknown infectious agents. These include Hantavirus, Ebola, and Marburg hemorrhagic fevers, rabies, monkeypox, anthrax, and smallpox. Since these pathogens can be lethal and some can spread as epidemics, CDC maintains Biosafety level (BSL)-3 and BSL-4 laboratories that support epidemiology, research, and prevention efforts to reduce the public health threat of these highly hazardous and infectious pathogens. Many of these pathogens are considered bioterrorism threats and are regulated as Tier 1 select agents.

CDC provides laboratory reference and diagnostic support for state and local health departments and many other federal agencies. CDC investigates all suspect domestic cases of known high-consequence pathogens and infectious diseases of unknown causes reported to CDC by state and local health departments.

CDC's unique gold standard laboratories, including the BSL-4 laboratories which require pressurized suits and specialized airflow systems to safely study high-consequence pathogens, serve as reference laboratories for the nation. These laboratories, along with CDC's scientific and medical experts, kept Americans safe by reducing the threat of high-consequence pathogens in FY 2017.

CDC staff investigate and respond to outbreaks of the world's deadliest infections. During 2017, they worked around the clock, within the United States and internationally, tracking infections and investigating new outbreaks to protect Americans from lethal infectious diseases:

- **Seoul virus** - CDC assisted health officials in 15 U.S. states and Canada in response to an outbreak of Seoul virus—a type of hantavirus—spread by pet rats to people that was initially reported in Wisconsin and infected 17 people in seven states. Seoul virus can cause flu-like symptoms and, in severe cases, kidney disease. CDC provided technical assistance to states to determine where infected rats may have come from and where they were distributed, as well as how many people were infected with the virus. CDC worked closely with Canadian health officials, who investigated linked cases in some Canadian provinces.
- **Rabies -** CDC assisted Wyoming health officials and the National Park Service in investigating a mass bat exposure at Grand Teton National Park, when approximately 20 people who stayed at a biological field station at the park in late summer came in contact with bats in their lodging. At least thirteen people required rabies post-exposure prophylaxis. Based on the amount of bat activity at two lodges in the park and consultation with CDC, Wyoming and park officials expanded the investigation to include people who stayed at the lodges since mid-May.
- **Brucella -** CDC assisted Texas and New Jersey officials on investigations of infections with RB51, a type of Brucella, in people whose only potential exposure to RB51 was through drinking raw milk purchased from farms or commercial supply chains. RB51 is a weakened Brucella strain that is used as a vaccine in cattle, but can still cause infections if people come in contact with it. Hundreds of other people who also consumed raw milk from the same sources were recommended treatment with antibiotics to prevent infection. These cases highlight the rising threat of infectious diseases associated with raw milk, and the importance of rapidly responding to cases to prevent additional infections.
- **Ebola** - On July 2, 2017, the most recent Ebola outbreak in the Democratic Republic of Congo (DRC) was officially declared over. CDC played an important role in this outbreak—as it has in many other international responses to outbreaks of Ebola virus and other viral hemorrhagic fevers (VHFs)—by providing strong support for life-saving communications, as well as diagnostic and epidemiologic support to the DRC Ministry of Public Health. The outbreak began on April 22, after a 39-year-old man developed fever, vomiting, and bleeding, and then died in transit to the hospital. Two people who helped transport him later developed similar symptoms and died. During the outbreak, 583 contacts were followed through the necessary 21 days after their last potential contacts with a confirmed or probable case.

- **Monkeypox** - During March 2017, CDC staff deployed to the Republic of the Congo in response to an outbreak of monkeypox. A close cousin to smallpox, monkeypox virus causes a similar severe rash illness and can be fatal. There is no treatment for the disease and prevention of spread to contacts is the key to controlling outbreaks. CDC staff assisted health officials track cases and contacts, as well as trained healthcare workers to recognize infection. At least 88 suspected cases were reported in Republic of Congo, including 6 deaths. In addition, CDC staff deployed in July and August to conduct ecologic studies in a region where the outbreak occurred to try to identify the source of the infection.

Identified unrecognized infectious diseases

CDC played a critical role in the discovery of new and emerging infectious diseases, using advanced molecular detection techniques to solve medical mysteries and identify pathogens faster and more accurately. Laboratory specimens from all over the nation and the world are sent to CDC, often in cases where the cause of illness is unknown. CDC receives over 20,000 slides and tissue samples to examine annually, and helps diagnose over 600 cases of unexplained illness or death each year.

- **Zika** - In response to the epidemic of Zika virus in Latin America, CDC's pathology laboratory developed a novel Zika detection test for tissues that disclosed the direct evidence of Zika virus in the brains of infants with microcephaly and in the placenta of infected infants, confirming the link between the virus and birth defects.
- **e-Pathology** - CDC continued implementation of an electronic platform called e-Pathology, which allows physicians and scientists to electronically submit images and scanned pathology slides to CDC pathologists for evaluation. CDC is expanding e-Pathology to offer users real-time pathology consultation. CDC's world renowned pathology team in Atlanta can examine digital images sent from anywhere to determine a diagnosis.

Developed innovative tools to reduce and better understand threats

CDC maintained world-class laboratories that conduct ground-breaking research to improve CDC's efforts to protect Americans against health threats, including:

- **Rabies** - CDC developed a new molecular test for detecting the rabies virus in human and animal samples. The exciting new test detects rabies faster and more accurately than other currently available tests. The new test is being piloted in several State public health laboratories who are doing a side-by-side comparison testing to the current gold standard test.
- **Ebola** - In order for the United States to be prepared in the event of an imported Ebola case or bioterrorism event, CDC worked with U.S. commercial partners on laboratory activities that led to the development of a drug that could be used to treat individuals with the virus, providing resources to treat Americans. In addition, CDC scientists discovered clues to why some people can survive Ebola that suggest avenues for treatment.
- **MicrobeNet** - This innovative online tool helps laboratorians and doctors around the world get the information they need to accurately diagnose diseases faster, which has saved lives. The tool allows unprecedented access to CDC's virtual microbe library of more than 2,400 rare and emerging infectious disease at no cost. Traditionally, clinicians or laboratorians who need to identify a bacteria or fungus send a sample to CDC and await test results. With MicrobeNet, CDC is dramatically improving the health of people in the United States by cutting this testing time from about one week to a few hours.

In FY 2019, CDC will:

- Use innovative tools such as recently developed diagnostic tests and MicrobeNet to help diagnose high-consequence infections more quickly and effectively, in order to protect Americans from these diseases

which include rabies, leptospirosis, and anthrax as well as imported emerging infections such as Lassa fever and monkeypox.

- Continue to improve diagnostic tests, evaluate antivirals, and create new vaccines for high-consequence pathogens. As genomic surveillance improves for many of these diseases, we continue to identify needs for diagnostic assay refinement. Some examples include species specific orthopoxvirus tests, and pan-Lassa fever diagnostics.

- Continue to develop medical and public health interventions for deadly diseases, including viral hemorrhagic fevers, which often have no specific therapies for treatment.

- Utilize a "One Health" approach to address the complex interplay between human health, animal health, and the environment by integrating surveillance and response strategies.

Emerging Respiratory Pathogens

CDC works to detect and respond to respiratory disease threats domestically and abroad through disease tracking, epidemiologic investigation and response, and laboratory activities. In 2017, CDC continued assisting partners abroad and preparing for possible Middle East Respiratory Syndrome (MERS) cases in the United States. CDC provided trainings on the CDC laboratory diagnostic assay for MERS, participated in outbreak investigations, assessed for genetic changes in the virus, worked with the Department of Homeland Security to train Customs and Border Protection officers, and provided guidance to healthcare providers, travelers, and airline crews.

In FY 2019, CDC will continue to provide state and local health departments 24/7 consultation regarding MERS identification and testing, partner at U.S. borders to increase surveillance for MERS, and deploy epidemiologists to help in public health investigations in affected countries. CDC continues to closely monitor MERS globally and to assess domestic risk, given the potential for this virus to cause more cases globally and in the United States. In addition to MERS, CDC continues to work closely with state and local health departments to plan for and respond to other respiratory pathogens such as Enterovirus D68 (EV-D68).

CDC continues to monitor the effectiveness of pneumococcal conjugate vaccines in the EIP, demonstrating the dramatic impact of the pneumococcal conjugate vaccine (PCV13), licensed in 2010 for prevention of invasive pneumococcal disease in both children and adults.

CDC continues to build capacity to prevent Legionnaire's disease/Legionella infections by developing and disseminating building water management toolkits, monitoring causes of Legionella outbreaks in communities and healthcare facilities, collaborating with CMS to support implementation of water management programs in healthcare facilities, collaborating with states and other partners to monitor the impact of prevention measures, and developing laboratory techniques to more quickly identify the most dangerous strains. In 2017, CDC provided technical support for more than 100 Legionnaires' disease outbreak investigations.

In FY 2019, CDC will support epidemiologic and laboratory surveillance for existing and emerging respiratory diseases. Specific activities include:

- Continued funding of all ten EIP sites to monitor respiratory bacterial pathogens, such as Group A and Group B *Streptococcus* and *Legionella*, and antibiotic resistance
- Develop and provide technical assistance for use of diagnostic tests to test for many pathogens at the same time (multi-array assays)
- Continuing to support planning, surveillance, laboratory testing, and providing technical assistance for MERS

- Ongoing epidemiologic and laboratory activities for non-influenza respiratory viruses that allow CDC to maintain expertise to respond to outbreaks of viruses such as EV-D68 in 2014

Healthcare-Associated Infections and Outbreak Response

Healthcare-Associated Infections (HAIs) are infections that people can get while receiving medical treatment in any healthcare setting. For example, in hospitals alone, one in 25 hospitalized patients has at least one HAI at any given time, with over one million infections occurring across the United States every year.[14,15]

While CDC has made great progress preventing HAIs, more work remains to eliminate these infections to save lives and reduce unnecessary healthcare costs.[16] CDC's world-class scientists have provided critical epidemiological support and laboratory testing to investigate outbreaks in healthcare, including a multi-state and local outbreaks of contaminated medical devices and products. Increasingly, CDC has been called to address issues related to the healthcare environment, surfaces, and equipment that create unintentional risks to patients, spreading infections including those caused by highly resistant bacteria (e.g., carbapenem-resistant *Enterobacteriaceae* [CRE]). Recent examples range from design flaws in sinks and other healthcare plumbing that contaminate rooms through sink splashback, to surgical support equipment for open-heart surgeries that have inadvertently blown pathogenic bacteria into patients' exposed heart tissue.

Advanced medical equipment we rely on to save lives can still spread infections even when the devices are used and cleaned according to the manufacturer's specifications. As healthcare evolves, CDC will continue to play a key role in recognizing these risks and providing guidance to protect patients and healthcare providers, making healthcare better and safer.

In FY 2019, to protect America's health security and prevent the spread of life-threatening infections in healthcare, CDC will:

- Continue to provide national leadership and scientific expertise in HAI prevention, identify emerging threats, and protect patients through outbreak response, detection, and control. This includes working with health departments and healthcare facilities when problems arise and engaging other public and private health partners to prevent HAIs.
- Continue to serve as the world's gold standard laboratory to identify untreatable pathogens and develop and evaluate new tests to protect the nation from emerging public health threats.
- Continue to develop evidence-based infection prevention guidelines to give healthcare providers and facilities the tools they need to keep patients and themselves safe and improve the quality of care.
- Continue to increase awareness and provide support to healthcare providers and healthcare facilities on sepsis, including the need to prevent infections that lead to sepsis, and urgently treat suspected sepsis cases to protect America's health and save lives.

[14] https://health.gov/hcq/prevent-hai-action-plan.asp
[15] http://www.nejm.org/doi/full/10.1056/NEJMoa1306801#t=articleResults
[16] These activities complement and are informed by CDC's National Healthcare Safety Network (NHSN) reporting capabilities.

Antibiotic Resistance Budget Request

Antibiotic Resistance (AR) —when bacteria does not respond to the drugs designed to kill them—is a threat to the population at large, to modern medicine, and to the healthcare, veterinary, and agriculture industries. Life-saving treatments such as surgery and chemotherapy, depend on antibiotics that work because the risk of infections that comes with those procedures can be prevented or reduced by antibiotics. The spread of antibiotic resistance can be contained with sustained commitment and comprehensive AR infrastructure.

Some AR infections are already untreatable and add considerable burden to both patients and to the U.S. healthcare system. Each year, CDC estimates that over two million illnesses and about 23,000 deaths are caused by AR in the United States alone, leading to approximately $20 billion in excess direct healthcare costs.[17] In addition, nearly half a million Americans suffer from *Clostridium difficile (C. diff*) infection, a potentially deadly diarrhea associated with antibiotic use. As the nation's health security agency, CDC is leading the public health response to antibiotic resistance. Without CDC, the country would have no situational awareness about new and known antibiotic resistant threats in the United States. CDC also provides the strategies, expertise, and resources for states and regions to adequately respond to these critical threats.

CDC is the Common Defense for the Country against public health threats caused by antibiotic resistance through its support for fundamental public health capabilities and specialized programs in order to prevent, detect, and respond to AR pathogens like carbapenem-resistant *Enterobacteriaceae* (CRE), *C. auris*, and resistant Salmonella. CDC's Antibiotic Resistance Laboratory Network (ARLN) supports labs nationwide to rapidly detect AR in healthcare, food, and the community, and inform local responses to prevent spread and protect people. The ARLN includes seven regional labs, the National Tuberculosis Molecular Surveillance Center (National TB Center), and labs in 50 states, six cities, and Puerto Rico. Finally, programs in 25 states and three cities prevent and contain HAI/AR threats, through the coordinated efforts of state/local public health and healthcare facilities to target prevention of infections.

Public and private sector research is crucial to discover new ways to protect people from antibiotic-resistant infections and prevent their spread. Such promising research includes exploring ways that the microbiome can be used to predict and prevent infections caused by drug-resistant organisms. Applied research into infection control strategies is also essential to combat unknown or emerging antimicrobial threats such as *C. auris* and "nightmare bacteria" CRE.

To prevent the importation of urgent AR threats, CDC supports containment by building infection prevention capacity, identifying emerging and existing antibiotic resistant pathogens, and implementing "early warning" systems for national surveillance programs. Recent investments have increased the nation's capacity to detect AR pathogens, which is critical to identify AR threats and to implement fast, targeted interventions to stop the spread of infections in healthcare, food, and the community.

In 2018, the AR Laboratory Network (ARLN) plans to achieve the following:

CRE:

- The Regional Labs of the ARLN will perform at least 5,000 CRE colonization tests to detect hidden reservoirs of disease and help stop outbreaks.
- ARLN laboratories across all 50 states, DC, and Puerto Rico will perform resistance testing on at least 5,000 "nightmare bacteria" CRE isolates.

[17] https://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf

C. auris:

- The ARLN, via CDC and the Regional Labs, will perform 100% of *C. auris* confirmation testing for the nation to inform patient clinical management and facility infection control actions.

Foodborne Pathogens:

- The ARLN, via a 50-state investment in PulseNet, will be able to perform whole-genome sequencing on Salmonella, Campylobacter, and E. coli isolates and simultaneously monitor these isolates for resistance genes. Specifically, in 2018, 75% of human isolates of Salmonella in the United States will be sequenced.

Gonorrhea:

- The ARLN via the Regional Labs and the Gonococcal Isolate Surveillance Project (GISP) will sequence at least 9,000 gonorrhea isolates.

Tuberculosis:

- The National Tuberculosis Molecular Surveillance Center of the ARLN will sequence 100% of the TB isolates in the United States, approximately 9,000 annually.

In FY 2018, CDC is continuing to improve detection and protecting patients and communities from the AR threats outlined in CDC's AR Threat Report:

- Improved Tracking, Faster and More Effective Response, Prevention, and Containment:
    - Sustaining core state and local laboratory and epidemiological capacity in all 50 states, six cities, and Puerto Rico for detecting, responding, and preventing AR infections related to healthcare, foodborne, and community infections.
    - Leveraging successful CDC programs to scale up cutting-edge technology in every state, including the implementation of whole genome sequencing (WGS) on food and waterborne bacteria, such as Salmonella, Shigella, and Campylobacter.
    - Supporting the Antimicrobial Resistance Laboratory Network (ARLN) of seven AR Regional Laboratories to assist state outbreak response, rapidly detect existing and emerging resistance, and support innovations in antibiotic and diagnostic development.
    - Strengthening national tuberculosis (TB) surveillance and infrastructure by establishing the National TB Molecular Surveillance Center, which will perform WGS of Mycobacterium tuberculosis to help target public health interventions and identify new antibiotic-resistant TB strains as they emerge.
- Improving Antibiotic Use:
    - Working with states to improve antibiotic use, which is critical to ensure that bacteria do not become resistant to antibiotics. This also includes working with public health, healthcare systems, and professional organizations to integrate antibiotic stewardship principles in all healthcare facility program activities such as early recognition of sepsis.
- Supporting New Approaches to Combat Antibiotic Resistance:
    - Investing in research on the link between antibiotics, the microbiome—the microorganisms that live naturally in and on our bodies—and the downstream consequences of widespread antibiotic use.

Budget Request

CDC's Antibiotic Resistance Solutions Initiative supports national infrastructure to detect, respond to, and contain AR infections associated with healthcare, food, and the community. The FY 2019 Budget request of **$137,000,000** to combat antibiotic-resistant (AR) pathogens, is $24,893,067 below the FY 2018 Annualized CR level. The level carries forward the proposed reductions included in the FY 2018 Budget.

In FY 2019, CDC will continue to work with state and local health departments, to protect Americans from the growing threat of antibiotic resistance, but will focus resources on States with demonstrated performance and highest need, reducing investments in research.

National Healthcare Safety Network (NHSN) Budget Request

Data collected to target healthcare-associated infection (HAI) prevention efforts and measure progress provides accountability and transparency, empowering healthcare professionals to improve the quality of care they provide to patients. Healthcare facilities identify and prevent HAIs and other health events using CDC's National Healthcare Safety Network (NHSN)—the nation's most comprehensive and widely used HAI/AR surveillance and quality improvement system. Over 22,000 U.S. healthcare facilities use NHSN as the cornerstone of their HAI elimination strategies.

Public health and healthcare partners--including healthcare facilities (e.g., hospitals, dialysis facilities, and nursing homes), state and local health departments, and federal partners (e.g., CMS, HHS, FDA, DOD, and VA)—have used NHSN data and system tools to significantly reduce HAIs. NHSN uses precision data to inform patients, identify gaps in HAI/AR prevention to the facility, unit, and ward level of multiple healthcare settings.

Budget Request

CDC's FY 2019 request of **$21,000,000** for NHSN is $142,611 above the FY 2018 Annualized CR level. The FY 2019 budget request will support NHSN reporting in healthcare facilities across the continuum of care, including acute-care hospitals, dialysis facilities, nursing homes, and ambulatory surgical centers, enabling CDC to:

- Continue to enhance the use and maintenance of NHSN reporting components to protect America's health.
- Improve NHSN infrastructure to reduce reporting burden and increase the use of electronic reporting.
- Promote technology and innovation to enhance HAI prevention within and across healthcare facilities.
- Combat AR infections and improve antibiotic prescribing.

Enhance the Use of and Maintain NHSN to Protect Patients

Data collected to target HAI prevention efforts and measure progress provides accountability and transparency, empowering healthcare professionals to improve the quality of care they provide to patients. CDC will maintain NHSN reporting of specific device- and procedure-associated infections and provide these data to CMS to prevent infections at the local level, and increase awareness to patients and the public.

CDC will also focus on improving NHSN reporting capabilities and HAI prevention efforts in critical access and other smaller hospitals since these facilities serve as a foundation for rural healthcare delivery systems. CDC is engaging CMS and other healthcare partners on the best ways to provide these vital services to these facilities.

CDC is continuing to promote the use of the Targeted Assessment for Prevention (TAP) Strategy[18] by facilities, health systems, and health departments to target and tailor prevention efforts for efficiency and efficacy. NHSN's TAP reports alert providers and public health professionals to healthcare facilities and units with more infections so they can target prevention efforts in these areas. CDC's TAP Facility Assessment Tools can then be used to assess current prevention practices and identify gaps. CDC's TAP Implementation Guides can be used to address these gaps, prevent infections, and protect patients.

Improve NHSN Infrastructure to Reduce Reporting Burden and Increase Use of Electronic Reporting

The collection and dissemination of trusted, reliable, and credible data stimulates efforts to protect patients and preserve quality healthcare. CDC is constantly making improvements in response to end-user needs to reduce burden on NHSN users and improve data reliability and accuracy to enable healthcare providers, health systems, and health departments to use the data to better prevent infections and protect patients. In FY 2019, CDC will

[18] https://www.cdc.gov/hai/prevent/tap.html

continue to promote the use of electronic data capture from health records and electronic data exchanges with NHSN as alternatives to manual processes, minimizing burden and increasing objectivity. Currently, approximately one-third of the facilities participating in NHSN use electronic data capture and reporting methods.

Promoting Technology and Innovation through Partnerships to Enhance HAI Prevention

In FY 2019, CDC will fund awardees from public and private sectors through existing cooperative agreements to better detect, contain, and prevent HAIs, including those caused by antibiotic-resistant pathogens. Funding will enable grantees to work with local partners—including group purchasing organizations, health insurers, healthcare facilities, professional societies, and state hospital associations—to develop or enhance HAI prevention efforts.

National Healthcare Safety Network Grant[1,2]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	9	9	9
- New Awards	0	0	0
- Continuing Awards	9	9	9
Average Award	$0.499	$0.499	$0.499
Range of Awards	$0.300-$0.700	$0.300-$0.700	$0.300-$0.700
Total Awards	$4.500	$4.500	$4.500

[1] Reflects awards supported with CDC's NHSN budget authority.

[2] These funds are not awarded by formula.

Combating AR Infections and Improving Antibiotic Prescribing through NHSN Data

In FY 2019, CDC will use NHSN data to assess antibiotic prescribing for facilities in support of national HAI/AR prevention goals. Measurement of antibiotic use in hospitals (including VA and DoD hospitals) is an integral part of efforts to reduce inappropriate use and stop unnecessary antibiotic exposure, which puts patients at risk of highly resistant infections and secondary complications such as C. difficile infections. CDC is also working to improve reporting of CRE infections in NHSN. For more additional information, please refer to CDC's AR Solutions Initiative budget narrative.

Preventing One of the Leading Causes of Death: Sepsis

Sepsis is a life-threatening condition caused by the body's overwhelming response to an infection, leading to tissue damage, organ failure, and even death. Sepsis often begins outside the hospital and many patients who develop sepsis have medical conditions or require frequent medical care prior to onset of sepsis. Thus, there is a critical need to engage public health partners and healthcare providers to prevent infections that lead to sepsis and quickly recognize and treat sepsis—improving patient outcomes and saving lives.

In 2017, CDC implemented a national initiative—*Get Ahead of Sepsis*—targeted to healthcare professionals, patients, and their families emphasizing the importance of early recognition and timely treatment of sepsis as well as the importance of preventing infections that could lead to sepsis. CDC also developed brand new resources to continue engaging partners and promote this information throughout the year.

In FY 2019, CDC will leverage resources to better track and prevent disability and death from this devastating illness. CDC will also continue working with healthcare partners to establish innovative ways to perform sepsis surveillance and reporting using data from the patient's electronic health record.

Food Safety Budget Request

CDC works to prevent the estimated 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths each year caused by pathogens in contaminated food. Although 1 in 6 Americans get sick from contaminated foods or beverages every year, significant progress has been made in reducing human illness caused by three major bacteria associated with food compared to 1996-1998 baseline incidence: *Listeria* incidence has decreased 45%, *E. coli* O157 incidence has decreased 44%, and *Campylobacter* incidence has decreased 26%.

CDC has a unique role in detecting and investigating foodborne illness and outbreaks and attributing them to specific foods and settings. CDC provides the vital link between illness in people and the food safety systems of government agencies and food producers. CDC collaborates closely with FDA, USDA, state and local health departments, and food industries to protect Americans from food contaminated with dangerous pathogens.

Budget Request

CDC's FY 2019 request of **$54,000,000** for food safety activities is $366,714 above the FY 2018 Annualized CR level. This request will help address critical unmet needs in the nation's food safety system, focusing on food safety priority areas at CDC and at state and local health departments. CDC will achieve these priorities in part through programs that enhance state and local public health capacity to support vital national surveillance, improve foodborne outbreak detection and investigations, enhance food safety prevention efforts, and maintain vigilance for emerging threats to our nation's food supply.

Priority areas include:

Innovating to better detect, stop, and prevent outbreaks

PulseNet is a network of laboratories in all 50 states and Washington, D.C. that detects outbreaks of foodborne disease. For the past 20 years, CDC's PulseNet laboratory system has been a cost effective tool for detecting foodborne disease outbreaks and correcting problems in the food production chain. Every year, PulseNet prevents approximately 270,000 illnesses and saves at least half a billion dollars in medical costs and lost productivity. For every $1 invested, $70 are saved.

Each state has at least one public health laboratory linked into the PulseNet network through which state health departments and CDC are able to identify ill people that are infected by bacteria with the same DNA fingerprint. Advanced Molecular Detection innovations such as Whole Genome Sequencing (WGS) technology are being deployed to state labs and are beginning to provide CDC and state health departments new tools to revolutionize PulseNet and foodborne outbreak investigations. These innovations allow PulseNet laboratories to reveal all the genetic material of a bacteria, including its antibiotic resistance characteristics, in one efficient process. Implementation of WGS at CDC and in state health departments is dramatically improving the ability to detect widespread problems in the food supply. Since its implementation, whole genome sequencing of Listeria DNA has helped solve more Listeria outbreaks and with fewer cases per outbreak investigation, compared to using the older technology that WGS is replacing. CDC is rapidly expanding PulseNet capacity in all 50 states to conduct sequencing on *Salmonella, E. coli, Shigella, Campylobacter, and Listeria* from human cases. By continuing core support to state health department PulseNet laboratories, enhanced investigation tools, and epidemiologists, outbreak detection and investigation will be improved throughout the country.

A rapidly emerging threat to PulseNet and CDC's ability to identify foodborne outbreaks is the increased adoption of culture-independent diagnostic test (CIDT) technologies used in clinical laboratories (e.g., laboratories which serve hospitals and clinics). CIDTs detect the DNA of bacteria directly from patient samples, like stool, to determine whether a patient has been infected with a foodborne pathogen, but do not provide all of the data required to connect cases and detect outbreaks. Until new AMD technologies, such as metagenomics, are available that provide the information directly from clinical samples, CDC is working with partners to ensure that cultures remain available for public health, and preserve the effectiveness of PulseNet.

To support the continuing function of PulseNet laboratories, the FY 2019 Budget request will:

- Track adoption of new CIDTs in clinical laboratories and analyze their impact on foodborne disease surveillance.
- Help public health laboratories collect bacterial isolates for PulseNet to preserve the ability to detect and control outbreaks until new laboratory technologies are developed.

To address the expected increase in foodborne disease outbreaks detected by PulseNet as WGS is implemented, CDC will:

- Develop methods to triage and prioritize outbreaks so limited state and local health department resources can be deployed effectively to stop the outbreaks.
- Create new methods and technologies for conducting more rapid and complete interviews of patients to determine what they ate that made them sick.

Expanding capabilities of state and local health departments to detect and solve outbreaks

The FY 2019 Budget request will allow CDC to continue to support, coordinate, and enhance the state epidemiology, laboratory, and environmental health capacity needed to track illnesses and detect and respond to foodborne disease outbreaks.

CDC leads efforts in approximately 30 multistate foodborne outbreak investigations each year with local, state, and federal agency partners. Outbreak data reported to CDC through PulseNet from state and local health departments help CDC identify and coordinate responses to large and multi-state outbreaks and provides critical data to prevent future outbreaks. Together, CDC, states, and other partners stop outbreaks, prevent illness, and demonstrate how improved prevention policies might prevent future outbreaks.

CDC drives improvements in foodborne outbreak detection and response at the state level through the Foodborne Diseases Centers for Outbreak Response Enhancement (FoodCORE) program and the Integrated Food Safety Centers of Excellence. FoodCORE centers at 10 sites (located in CO, CT, MN, NYC, OH, OR, SC, TN, UT, and WI) develop and test practices and procedures that speed up outbreak tracking and response. CDC's six Food Safety Centers of Excellence (located in CO, FL, MN, NY, OR, and TN) provide assistance and training to other state and local public health programs to build their capacity to track and investigate foodborne disease.

In FY 2019, CDC will:

- Improve disease detection and outbreak response by integrating new whole genome sequencing technology into routine public health practice.
- Support state and local capacity for monitoring foodborne illness and response to outbreaks.
- Train state public health personnel in best practices for foodborne disease detection, surveillance, pathogen identification, outbreak investigation, and control.
- Implement widely the FoodCORE program metrics to identify strengths and weaknesses, measure program improvements, and enhance accountability.
- Expand Integrated Food Safety Centers of Excellence regional support for state and local food safety programs.

Driving Prevention with Data and Analysis

Knowing more about the foods, germs, and settings where outbreaks occur increases CDC's understanding of their impact on human health and is the first step towards prevention. Tracking trends in foodborne infections through robust state-based surveillance systems each year uncovers problems and identifies potential solutions. CDC provides leadership for foodborne illness surveillance through systems that track specific foodborne illnesses, monitor foodborne outbreaks, and detect emerging antibiotic resistant foodborne infections. CDC, the U.S. Food and Drug Administration (FDA), and the Food Safety and Inspection Service (FSIS) of the United States Department of Agriculture (USDA) created the Interagency Food Safety Analytics Collaboration (IFSAC) to determine the amount of foodborne illness caused by various categories of food. This information helps industry, consumers, and regulatory partners focus actions on identifying high risk foods to prevent foodborne illnesses and to measure progress of prevention measures.

In FY 2019, CDC will:

- Monitor foodborne diseases through:
    - Population surveys to determine the burden of foodborne illness.
    - Collection and analysis of foodborne outbreak data.
    - Evaluation of WGS technologies to monitor emerging antibiotic resistance.
- Gather accurate information from the population on frequency of consuming specific foods.
- Assess trends in foodborne illness, identify high-risk foods, and evaluate the effectiveness of prevention strategies, through the Interagency Food Safety Analytics Collaboration.
- Improve the integration, analysis, usability, and sharing of data with food safety partners and the public.
- Reduce data gaps and improve linkage across surveillance systems by working with FDA and USDA's Food Safety and Inspection Service to improve targeting of prevention efforts.

Food Safety Funding Provided through Epidemiology and Laboratory Capacity and Emerging Infections Program Cooperative Agreements[1,2]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	57	57	57
- New Awards	0	0	0
- Continuing Awards	57	57	57
Average Award	$0.377	$0.377	$0.377
Range of Awards	$0.038-$1.700	$0.038-1.700	$0.038-1.700
Total Awards	$21.520	$21.520	$21.520

[1]Reflects estimated awards funded by CDC's Food Safety budget authority.

[2]These funds are not awarded by formula.

Quarantine and Migration Budget Request

Modern air travel allows an infected person to fly anywhere in the world within 24 hours, often in less time than it takes for that individual to develop symptoms of disease. The recent Ebola, Zika Virus, and Middle East Respiratory Corona Virus outbreaks demonstrate that novel pathogens and disease outbreaks in distant locations pose a potential threat to communities in the United States.

CDC's global migration and quarantine activities focus on preventing the introduction and spread of infectious disease into and within the United States through both regulatory action such as isolation orders to limit the spread of an infectious disease and targeted interventions in globally mobile populations, such as contact investigations of ill or exposed travelers. CDC uses its knowledge of global travel dynamics and the complex issues surrounding U.S. border and migration health to carry out its unique regulatory responsibilities, to implement cost-effective public health programs, and to leverage innovative partnerships for a greater health security impact through a network of private sector and health partners, and federal front line responders (e.g., domestic and foreign air industry, 760 panel physicians, 3,000 civil surgeons, and approximately 28,000 Customs and Border Protection agents).

CDC is at the forefront of defending the United States from public health threats. CDC:

- **Protects public health at U.S. ports of entry.** CDC rapidly responds to sick travelers who arrive in the United States, alerting travelers about disease outbreaks, and restricting the importation of animals and products that may carry disease. During the Ebola outbreak in West Africa, staff implemented medical screening at airports in both the United States and West Africa, and provided technical guidance on the active monitoring of persons entering the United States from countries experiencing the Ebola outbreak.
- **Keeps Americans healthy during travel and while living abroad.** CDC helps reduce illness and injury in U.S. residents traveling internationally or living abroad through alerts, recommendations, education, and support to travelers and healthcare providers based on the best science (which includes the Yellow Book—a reference for those who advise international travelers about health risks). In response to the global Zika virus outbreak, CDC maintains dozens of travel advisories and provides guidance on the risks inherent in traveling to areas with active Zika transmission.
- **Ensures the health of individuals coming to live and work in the United States.** This work includes mandatory health screenings for all immigrants and refugees entering the United States, as well as overseas vaccination and parasitic treatment programs. These activities prevent the importation of infectious diseases, particularly tuberculosis, and provide relevant health information for healthcare providers continuing care after arrival in the United States.
- **Partners to protect the health of U.S. communities along the southwest border.** CDC works with key state, local, and Mexican public health institutions to detect, notify, investigate, and respond to illness reports and infectious disease among residents and travelers in U.S. communities along the U.S.-Mexico border.

Budget Request

CDC's FY 2019 request of **$31,572,000** for Migration Health and Quarantine is $214,405 above the FY 2018 Annualized CR level. CDC will use these funds in FY 2019 to implement public health programs to protect U.S. communities from infectious diseases and medically screen people who are relocating to the United States from another part of the world.

In FY 2019, CDC will also continue to fund domestic and international partners through existing and new cooperative agreements. These awards protect the health of U.S. communities, the health of people coming to live and work in the United States, and the health of international travelers; improve the tracking of disease

outbreaks and trends; and build epidemiologic and public health capacity to respond to public health emergencies.

Additional efforts during FY 2019 will include:

- Continuing to strengthen public health security at U.S. ports of entry.
- Operating CDC's 20 quarantine stations to ensure that people, animals, and animal products coming to the United States do not spread disease.
- Working collaboratively with the Office of Refugee Resettlement and other partners in exploring opportunities and mechanisms to enhance the cost effectiveness of public health interventions for U.S. bound refugees by moving these services overseas where they can be delivered prior to departure to the United States.
- Providing essential drugs to hospitals to save the life of someone with malaria, botulism, or diphtheria. The proximity of CDC quarantine stations to airports enables CDC to rapidly respond in these kinds of emergency situations. In FY 2017, CDC released 150 shipments of these life-saving drugs.
- Responding to major health emergencies involving travel to and within the United States.
- Collaborating with local, state, and federal partners in developing all-hazards biodefense strategies for both naturally emerging threats (e.g., pandemics including influenza, Ebola, Zika, Middle East Respiratory Syndrome, Yellow Fever, plague, and others) and those purposely synthesized for malicious intent as biologic weapons.

Keeping Americans healthy during travel and while living abroad:

- Tracking and analyzing occurrences of disease throughout the world to help U.S. travelers and healthcare providers stay informed.
- Continuing to provide updated information to travelers on emerging infectious disease threats through the Travelers' Health website, cutting edge mobile applications, and The Yellow Book.

Improving the health of individuals coming to live and work in the United States:

- Delivering evidence-based guidelines for mandatory medical screening and comprehensive tracking of diseases in these populations.
- Providing information to health departments and healthcare providers for medical follow-up of individuals coming to live and work in the United States.
- Expanding cost-effective overseas interventions to vaccinate and treat parasitic diseases for U.S.-bound refugees.

Partnering to protect the health of U.S. communities along the southwest border:

- Detecting, notifying, investigating, and responding to illness reports and infectious disease cases in individual traveling to and living in U.S. communities along the southwest border.

Within the requested amount, up to $1.0 million is to remain available until expended for quarantine-related medical and transportation costs of travelers with highly contagious diseases such as multi-drug resistant (MDR) and totally drug resistant (TDR) tuberculosis. Isolating and quarantining travelers with highly contagious diseases such as MDR and TDR tuberculosis is common defense of public health in the United States.

State Table Funding[1]

	FY 2017 Estimate[2]	FY 2018 Estimate[3]	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$1,915,121	$1,329,964	$1,329,964	$0
Alaska	$2,160,846	$1,298,457	$1,298,457	$0
Arizona	$2,878,230	$2,333,902	$2,333,902	$0
Arkansas	$2,370,099	$1,625,106	$1,625,106	$0
California	$8,231,642	$5,745,149	$5,745,149	$0
Colorado	$5,086,822	$4,040,381	$4,040,381	$0
Connecticut	$2,950,231	$2,226,299	$2,226,299	$0
Delaware	$1,213,517	$740,148	$740,148	$0
Florida	$3,881,800	$2,952,231	$2,952,231	$0
Georgia	$3,800,942	$2,768,318	$2,768,318	$0
Hawaii	$2,490,249	$1,653,735	$1,653,735	$0
Idaho	$977,481	$673,634	$673,634	$0
Illinois	$3,609,460	$2,710,788	$2,710,788	$0
Indiana	$2,732,282	$2,009,423	$2,009,423	$0
Iowa	$3,235,343	$2,035,076	$2,035,076	$0
Kansas	$2,245,473	$1,545,584	$1,545,584	$0
Kentucky	$2,565,923	$1,723,674	$1,723,674	$0
Louisiana	$1,824,724	$1,241,749	$1,241,749	$0
Maine	$1,826,219	$1,242,001	$1,242,001	$0
Maryland	$4,896,495	$3,576,108	$3,576,108	$0
Massachusetts	$4,358,004	$3,122,979	$3,122,979	$0
Michigan	$5,788,644	$4,525,214	$4,525,214	$0
Minnesota	$8,654,461	$6,851,434	$6,851,434	$0
Mississippi	$1,134,626	$728,073	$728,073	$0
Missouri	$1,534,828	$1,115,009	$1,115,009	$0
Montana	$2,511,375	$1,517,326	$1,517,326	$0
Nebraska	$2,711,891	$1,933,278	$1,933,278	$0
Nevada	$1,992,176	$1,390,788	$1,390,788	$0
New Hampshire	$2,538,276	$1,695,396	$1,695,396	$0
New Jersey	$2,423,975	$1,839,398	$1,839,398	$0
New Mexico	$2,563,928	$1,948,578	$1,948,578	$0
New York	$7,712,980	$6,511,368	$6,511,368	$0
North Carolina	$3,555,246	$2,721,394	$2,721,394	$0
North Dakota	$1,307,259	$817,108	$817,108	$0
Ohio	$3,569,605	$2,817,032	$2,817,032	$0
Oklahoma	$1,781,891	$1,216,201	$1,216,201	$0
Oregon	$3,680,960	$2,882,098	$2,882,098	$0
Pennsylvania	$3,245,778	$2,311,022	$2,311,022	$0
Rhode Island	$2,478,789	$1,625,363	$1,625,363	$0
South Carolina	$2,867,137	$2,147,715	$2,147,715	$0
South Dakota	$1,203,151	$723,277	$723,277	$0
Tennessee	$7,637,071	$5,949,475	$5,949,475	$0
Texas	$3,867,871	$2,785,538	$2,785,538	$0
Utah	$3,539,441	$2,635,481	$2,635,481	$0
Vermont	$1,624,187	$1,066,066	$1,066,066	$0
Virginia	$3,944,974	$3,078,007	$3,078,007	$0
Washington	$7,173,288	$5,452,923	$5,452,923	$0
West Virginia	$1,891,799	$1,231,506	$1,231,506	$0
Wisconsin	$5,835,131	$4,413,088	$4,413,088	$0
Wyoming	$1,443,647	$1,056,104	$1,056,104	$0

	FY 2017 Estimate[2]	FY 2018 Estimate[3]	FY 2019 Estimate	FY 2019 +/- FY 2018
Cities				
Chicago	$1,722,666	$1,167,166	$1,167,166	$0
Houston	$1,777,762	$1,152,548	$1,152,548	$0
LA County	$2,395,983	$1,584,500	$1,584,500	$0
New York City	$6,742,820	$4,224,075	$4,224,075	$0
Philadelphia	$1,842,205	$1,169,744	$1,169,744	$0
Washington, D.C.	$1,469,906	$1,162,723	$1,162,723	$0
Territories				
American Samoa	$127,363	$21,986	$21,986	$0
Federated States of Micronesia	$173,664	$85,588	$85,588	$0
Guam	$677,945	$216,172	$216,172	$0
Marianna Islands	$194,099	$40,486	$40,486	$0
Marshall Islands	$46,249	$31,043	$31,043	$0
Republic of Palau	$359,416	$150,691	$150,691	$0
U.S. Virgin Islands	$866,361	$353,096	$353,096	$0
Puerto Rico	$1,198,341	$862,731	$862,731	$0
Subtotal States	**$165,465,288**	**$121,579,966**	**$121,579,966**	**$0**
Subtotal Cities	**$15,951,342**	**$10,460,756**	**$10,460,756**	**$0**
Subtotal Territories	**$3,643,438**	**$1,761,793**	**$1,761,793**	**$0**
Additional vector-borne funding for select states[4]	**N/A**	**$7,200,000**	**$7,200,000**	**$0**
Total	**$185,060,068**	**$141,002,515**	**$141,002,515**	**$0**

[1]The table includes ELC awards that fund all 50 states as well as select local and territorial/U.S. affiliated grantees. Awards include funding from lines both within and outside of the National Center for Emerging and Zoonotic Infectious Diseases.

[2]FY 2017 funding does not include ELC awards supported through supplemental Zika funding.

[3]FY 2018 and FY 2019 estimates account for the proposed reduction in funding for Antibiotic Resistance and proposed elimination of funding for Epidemiology and Laboratory Capacity (PPHF) and Healthcare-Associated Infections (PPHF).

[4]Additional vector-borne funding only reflects new ELC awards supported by the increase in the Vector-borne Disease funding line requested in the FY 2018 and FY 2019 President's Budgets that will provide additional capacity in up to 9 states. Continuing vector-borne awards are included by awardee in the table.

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CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$775.682	$772.365	$939.250	+$166.885
PPHF	$337.950	$305.135†	$0.000	-$305.135
Total Request	**$1,113.632**	**$1,077.500**	**$939.250**	**-$138.250**
FTEs	836	699	699	0
Tobacco Prevention and Control	$204.803	$192.229	*	N/A
PPHF (non-add)	*$126.000*	*$113.765†*	*	*N/A*
Nutrition, Physical Activity and Obesity	$49.803	$49.581	*	N/A
High Obesity Rate Counties (non-add)	*$9.977*	*$9.932*	*	*N/A*
School Health	$15.364	$15.295	$15.371	+$0.076
Prevention Research Centers	$25.401	$25.288	$0.000	-$25.288
Heart Disease and Stroke	$129.833	$122.561	*	N/A
PPHF (non-add)	*$73.000*	*$65.912†*	*	*N/A*
Diabetes	$139.901	$132.675	*	N/A
PPHF (non-add)	*$72.000*	*$65.008†*	*	*N/A*
National Diabetes Prevention Program	$22.453	$22.347	$19.962	-$2.385
Cancer Prevention and Control	$355.840	$354.252	$337.424	-$16.828
Breast and Cervical Cancer	$209.508	$208.574	$210.000	+$1.426
WISEWOMAN (non-add)	*$21.071*	*$20.977*	*$21.120*	*+$0.143*
Breast Cancer Awareness for Young Women	$4.948	$4.926	$4.960	+$0.034
Cancer Registries	$49.324	$49.104	$49.346	+$0.242
Comprehensive Cancer	$19.629	$19.541	$67.143	+$47.602
Johanna's Law	$5.487	$5.463	$5.500	+$0.037
Cancer Survivorship Resource Center	$0.474	$0.472	$0.475	+$0.003
Oral Health	$17.958	$17.878	$17.000	-$0.878
Safe Motherhood and Infant Health	$45.892	$45.688	$46.000	+$0.312
Arthritis	$10.974	$10.925	*	N/A
Racial and Ethnic Approaches to Community Health (REACH) (PPHF)	$50.950	$46.003†	$0.000	-$46.003
Good Health and Wellness in Indian Country (non-add) (PPHF)	*$16.000*	*$15.891†*	*$0.000*	-$15.891
Million Hearts® (PPHF)	$4.000	$3.612†	$0.000	-$3.612
National Early Child Care Collaboratives (PPHF)	$4.000	$3.612†	$0.000	-$3.612
Hospitals Promoting Breastfeeding (PPHF)	$8.000	$7.223†	$0.000	-$7.223
Other Chronic Disease Prevention[1]	$28.459	$28.331	$3.493	-$24.838
Glaucoma	$3.292	$3.278	$0.000	-$3.278
Visual Screening Education	$0.524	$0.521	$0.000	-$0.521
Inflammatory Bowel Disease	$0.748	$0.745	$0.000	-$0.745
Interstitial Cystitis	$0.848	$0.844	$0.000	-$0.844
Excessive Alcohol Use	$2.993	$2.980	$0.000	-$2.980
Chronic Kidney Disease	$2.095	$2.086	$0.000	-$2.086
Epilepsy	$8.481	$8.442	$0.000	-$8.442
National Lupus Patient Registry	$5.986	$5.959	$0.000	-$5.959
Alzheimer's Disease	$3.492	$3.476	$3.493	+$0.017
America's Health Block Grant	N/A	N/A	$500.000	+$500.000

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

* Denotes programs that could be supported by the *America's Health* Block Grant.

[1] FY 2017 Operating Level Chronic Disease Prevention and Health Promotion budget structure is comparably adjusted to reflect Other Chronic Diseases funding line in FY 2018 President's Budget and FY 2019 Request.

Enabling Legislation Citation: PHSA Title II § 1501–1509,* PHSA Title II § 317,* PHSA Title II § 317D,* PHSA Title II § 317H,* PHSA Title II § 317K,* PHSA Title II § 317L,* PHSA Title II § 317M,* PHSA Title II § 317P,* PHSA Title II § 330E,* PHSA Title II § 399B*–399E,* PHSA Title II § 399NN, PHSA Title II § 399Q, PHSA Title II § 399V-3,* PHSA Title II § 399W,* PHSA Title II § 399X,* PHSA Title II § 399Y,* PHSA Title II § 399Z,* PHSA Title XVII § 1706,* Comprehensive Smokeless Tobacco Health Education Act of 1986, Comprehensive Smoking Education Act of 1984, Fertility Clinic Success Rate And Certification Act of 1992 (P.L. 102-493), PHSA Title II § 301, PHSA Title II § 307, PHSA Title II § 310, PHSA Title II § 311, PHSA Title II § 399V-6

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/expiring noted with *

Allocation Methods: Direct Federal Intramural; Competitive Cooperative Agreements/Grants, including Formula Grants; and Competitive Contracts

Chronic diseases—such as heart disease, cancer, chronic lung diseases, stroke, and diabetes—account for most deaths in the United States and globally, and are the major causes of sickness, disability, and healthcare costs in the nation. They are responsible for 7 of 10 deaths among Americans each year. Noncommunicable diseases and conditions, including chronic diseases, account for 86% of our nation's healthcare costs, which were $2.9 trillion in 2013. The vast majority of chronic diseases result from a few key risk factors. For example:

- Nearly 1 of 7 adults smokes, and every day about 2,300 youth younger than 18 years try their first cigarette. Each year, nearly half a million American adults die prematurely of smoking or exposure to secondhand smoke. Another 16 million live with a serious illness caused by smoking.
- Nearly 4 out of 10 Americans are obese, a risk factor for multiple chronic diseases including type 2 diabetes.
- Only half of American adults and a quarter of adolescents get enough physical activity. About 10% of US adults and 2% of adolescents consume the recommended amount of vegetables.
- 34 million of the 75 million American adults with high blood pressure do not have it under control.

Chronic diseases share causal pathways and are inter-related. For example, tobacco use causes heart disease, preterm birth, many cancers, type 2 diabetes, and stroke. Poor nutrition and associated obesity cause high blood pressure, high cholesterol, type 2 diabetes, heart disease, and breast and colorectal cancer. Lack of physical activity compromises health in multiple ways and is causally associated with many chronic diseases, including heart disease, cancer, and type 2 diabetes. Diabetes increases the risk of heart disease and cancer. Obesity increases the risk of arthritis and poor reproductive outcomes. Poor oral health can exacerbate diabetes and heart disease.

While chronic diseases affect all populations, they are not evenly distributed. Disease rates vary by race, ethnicity, education, and income level, with the most disadvantaged Americans often suffering the highest burden of disease. For example, African-American women had a 41% higher rate of breast cancer mortality (28.1 deaths per 100,000) than white women (20.0 deaths per 100,000) in 2014. Diagnosed diabetes is over 65% higher among Hispanics/Latinos, and twice as high among American Indians and Alaska Natives, than non-Hispanic whites. Among adults 25-64 years of age, 31% with a high school diploma or less are current smokers, compared to 9% of adults with a bachelor's degree or higher.

CDC's chronic disease prevention framework[19] guides its efforts to collaboratively and efficiently build and strengthen the systems and environments that support Americans in taking charge of their own health. Four

[19] Bauer UE Briss PA, Goodman RA, Bowman BA. Prevention of chronic disease in the 21st century: elimination of the leading preventable causes of premature death and disability in the USA. Lancet 2014:384:45-52.

domains—or activity areas—comprise the framework. Work in each domain contributes to CDC's overarching goals of preventing and reducing chronic diseases, conditions, and associated risk factors and behaviors; promoting health; and eliminating health disparities.

CDC's Framework for Chronic Disease Prevention

Domain	Domain Description
Epidemiology and Surveillance	Provides robust data and information to understand chronic diseases and risk behaviors, inform interventions, and track progress in addressing them
Environmental approaches	Supports and reinforces healthy behaviors in communities, work places, schools, and anywhere people are located
Healthcare system interventions	Increases the effective delivery and use of clinical and other preventive services
Community programs linked to clinical services	Ensures people with or at high risk for chronic conditions have the support they need to reduce their risks, manage their conditions, and improve their quality of life

CDC's FY 2019 request of **$939,250,000** for Chronic Disease Prevention and Health Promotion is $138,250,097 below the FY 2018 Annualized CR level. This request carries forward proposed reductions in and eliminations of Racial and Ethnic Approaches to Community Health (REACH), Million Hearts, National Early Child Care Collaboratives, and Hospitals Promoting Breastfeeding from the FY 2018 President's Budget Request. The request includes resources to support States, tribes, and territories to address leading chronic diseases through the *America's Health* Block Grant and supports the prevention of diabetes through the National Diabetes Prevention Program. Across CDC, the FY 2019 Budget prioritizes activities that will allow CDC to advance its core public health mission.

In FY 2019, CDC will continue to lead U.S. efforts to prevent and control chronic diseases and associated risk factors by:

- Supporting a robust public health response at all levels by implementing targeted chronic disease prevention interventions though state, tribal, local, and territorial health departments; community-based organizations; and non-governmental partners.
- Monitoring chronic diseases, conditions, and risk factors to track national trends and evaluate effective interventions.
- Conducting and translating public health research and evaluation to enhance the uptake of effective public health strategies.
- Providing national leadership and technical assistance to build the evidence for effective prevention programs.
- Communicating to partners and the general public about chronic disease burden, risks, and prevention opportunities.
- Informing sound public health policies that effectively combat chronic diseases and associated risk factors.

Racial and Ethnic Approaches to Community Health

The FY 2019 budget request eliminates funding for the Racial and Ethnic Approaches to Community Health (REACH) program. The FY 2019 Budget integrates existing disease-based activities into a new Block Grant to increase flexibility to States and Tribes to more efficiently and effectively address the leading causes of death and disability specific to each State. State, local, or tribal recipients of the $500 million *America's Health* Block Grant will continue work on the leading causes of death and disability in these communities.

Million Hearts

The FY 2019 budget request eliminates dedicated funding for the Million Hearts® program, which has previously been funded by the Prevention and Public Health Fund. This program is a collaboration between CDC and the Centers for Medicare and Medicaid Services (CMS) to enhance cardiovascular disease prevention activities across the public and private sector.

National Early Child Care Collaboratives

The FY 2019 budget request eliminates dedicated funding for the National Early Child Care Collaboratives program, which has previously been funded by the Prevention and Public Health Fund. State, local, or tribal recipients of the *America's Health* Block Grant could continue to promote similar prevention activities in the Early Child Care and Education (ECE) setting as a way to prevent obesity. This program implements obesity prevention initiatives targeting ECE settings to help establish and improve the healthy nutrition and physical activity habits of young children. To carry out this work, CDC supports ECE learning collaboratives in nine states to facilitate best practices in nutrition, breastfeeding support, physical activity, and screen time.

Hospitals Promoting Breastfeeding

The FY 2019 budget request eliminates dedicated funding for the Hospitals Promoting Breastfeeding program. This program was created in FY 2012, funded by the Prevention and Public Health Fund. This program promotes and supports evidence-based strategies in states, communities, and hospitals to help women who choose to breastfeed to start and continue breastfeeding. State, local, or tribal recipients of the *America's Health* Block Grant could continue to promote breastfeeding as a way to prevent obesity and type 2 diabetes.

CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

BY THE NUMBERS…

Chronic Diseases are the leading cause of death, disability, and health care costs in the United States: 1 in 2 adults has a chronic disease and 1 in 4 adults has two or more chronic diseases.

Poor nutrition, lack of physical activity, and tobacco use are key risk factors. CDC programs produce lasting change when it comes to addressing these costly conditions. Based on the most recent data available:

- Nearly 19% of children and adolescents ages 2-19 and almost 40% of adults have obesity,[1] increasing risks for high blood pressure, heart disease, cancer, and diabetes. CDC programs contributed to an increase in the percentage of adults who have their high blood pressure under control from 48.5% to 54%, and more than 100,000 people reducing or reversing their risk of type 2 diabetes through participation in CDC's National Diabetes Prevention Program.
- 1 in 5 children ages 5 to 11 has at least one untreated decayed tooth.[2] From 1999-2014, CDC grant programs supported an increase in dental sealants among low-income children preventing almost 1 million cavities.
- Consumption of whole fruit has increased among children, but 9 in 10 still don't eat enough vegetables.[3] With CDC support, between 2012 and 2016, more than 4,800 schools obtained and offered salad bars nationwide. Now, 2.4 million children have easier access to more fruits and vegetables each day.
- Less than 3 in 10 high school students get at least 60 minutes of physical activity every day.[4] Among adults, only 1 in 5 (21%) get the recommended 150 minutes of physical activity per week.[5] With CDC support, 61% of schools have a joint use agreement for shared use of school or community physical activity facilities after the school day, and 32 states and Washington, D.C., have adopted state-level Complete Streets policies that make it easier to cross the street, walk to shops, and bicycle to work.
- Nearly 11% of high school students smoke—an all-time low for this age group since CDC began collecting this data in 1991. However, 15.1% of adults still smoke cigarettes.[6] Since 2012, CDC's Tips from Former Smokers media campaign has motivated at least 500,000 cigarette smokers to quit for good.
- Almost 240,000 women were diagnosed with breast cancer and more than 41,000 died from this disease.[7] More than 12,500 women were diagnosed with cervical cancer and approximately 4,100 women died from the disease.[8] Since 1991, the National Breast and Cervical Cancer Early Detection Program has served more than 5.3 million women and diagnosed over 63,000 cases of breast cancer and almost 200,000 precancerous cervical lesions.

References:

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[3] Vital Signs: Fruit and Vegetable Intake Among Children — United States, 2003–2010 (National Health and Nutrition Examination Surveys from 2003 to 2010).

[4] Laura K, McManus T, Harris WA, et al. Youth Risk Behavior Surveillance—United States, 2015. MMWR. 2016;65(6):1–174.

[5] Data Source: U.S. Department of Health and Human Services. Physical Activity: Healthy People 2020 Web site. Accessed 6/21/2017. https://www.healthypeople.gov/2020/topics-objectives/topic/physical-activity/objectives. (National Health Interview Survey (NHIS), CDC/NCHS).

[6] Phillips E, Wang TW, Husten CG, et al. Tobacco Product Use Among Adults — United States, 2015. MMWR Morb Mortal Wkly Rep 2017;66:1209–1215. DOI: http://dx.doi.org/10.15585/mmwr.mm6644a2.

[7] U.S. Cancer Statistics Working Group. United States Cancer Statistics: 1999–2014 Incidence and Mortality Web-based Report. Atlanta (GA): Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute; 2017. Available at: http://www.cdc.gov/uscs.

[8] U.S. Cancer Statistics Working Group. United States Cancer Statistics: 1999–2014 Incidence and Mortality Web-based Report. Atlanta (GA): Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute; 2017. Available at: http://www.cdc.gov/uscs.

Chronic Disease Prevention and Health Promotion Funding History	
Fiscal Year	Dollars (in millions)
2015 (BA)	$747.220
2015 (PPHF)	$452.000
2016 (BA)	$837.701
2016 (PPHF)	$338.950
2017 Final (BA)	$775.682
2017 Final (PPHF)	$337.950
2018 Annualized CR (BA)	$772.365
2018 Annualized CR (PPHF)†	$305.135
2019 President's Budget (BA)	$939.250
2019 President's Budget (PPHF)	$0.000

Chronic Disease Prevention Block Grant Budget Request

The proposed five-year chronic disease prevention and health promotion block grant, *America's Health*, provides flexibility for states, tribes, localities, and territories to focus on the top public health challenges present in their jurisdiction. These challenges are overwhelmingly chronic diseases, which account for seven of the ten leading causes of death, cause major suffering and disability to individuals and families, and are responsible for most of the nation's healthcare costs. They could include preventing and better managing two of the most common and costly chronic diseases, heart disease and diabetes; preventing or reducing child obesity; and addressing arthritis, the leading cause of disability in the United States.

Budget Request

For FY 2019, CDC requests **$500,000,000** for the *America's Health* Block Grant. This request maintains the FY 2018 President's Budget proposal to reform state-based chronic disease programs to provide additional flexibility to states.

Approach

With block grant funding, States and Tribes have the flexibility to organize prevention and control efforts and deploy evidence-based interventions in a manner that makes the most sense to their jurisdictions and circumstances. Grantees could implement customized strategies to:

- Improve the health and quality of life of people living with heart disease, diabetes, obesity, and arthritis
- Help people who use tobacco to stop using and people who don't use tobacco to stay tobacco-free
- Help people make sensible, healthy food and beverage choices wherever they are
- Increase opportunities for people to be physically active at home, at work, in communities, and throughout the day.

Effective public health interventions increase choices and opportunities for Americans to prevent and manage their chronic diseases, choose healthy foods and beverages, be physically active, and avoid tobacco use. As a result, grantees will be able to demonstrate real improvements in health by addressing the public health challenges facing their specific population.

Grantees will have the opportunity to work with governmental and nongovernmental partners, community programs and associations, employers, businesses, healthcare delivery systems, foundations, and philanthropies, among others, to bring additional skills, expertise, resources, and capacity to their chronic disease prevention and health promotion efforts.

Grantees will also be allowed to use funding for the national public health accreditation process. Accreditation by the Public Health Accreditation Board (PHAB) signifies that a health department is meeting standards in providing essential public health services in the community.

Funding Approach

The extramural portion of the *America's Health* Block Grant program is comprised of two components—a core block grant component and an innovation component. The core component (at least 85% of extramural funding) will fund state (50) and territorial (8) health departments, the Washington, D.C. health department (1), and Tribal Epidemiology Centers (12). The **innovation component** (up to 15% of extramural funding) will fund, on a competitive basis, large cities (up to 10), rural and frontier areas (up to 15), and tribes (up to 15). Entities eligible to apply for the core component can also apply for funding through the innovation component—either on their own or on behalf of and with the support of a city, rural/frontier area, or tribe.

Potential Goals and Outcomes

Potential goals include, but are not limited to:

- Improved health status and health outcomes for people with heart disease, diabetes, or arthritis
- Reduced tobacco use
- Improved nutrition
- Increased physical activity.

Shorter-term outcomes may include:

- The percent of adults with high blood pressure who have their blood pressure under control
- The percent of adults with diabetes who have an A1c level at or below 7 percent
- The number of adults with prediabetes who enroll in a CDC-recognized diabetes prevention program
- The percent of adults with arthritis who engage in regular physical activity
- Prevalence of cigarette smoking in the total population
- Percent of children/adolescents and adults who consume at least two servings of fruit and two servings of vegetables each day
- Percent of children/adolescents and adults who meet the Guidelines for Physical Activity recommendations
- Percent of children/adolescents and adults who achieve and maintain optimal weight.

Longer-term outcomes may include:

- Decreased prevalence of obesity among children/adolescents and adults
- Decreased incidence of type 2 diabetes
- Reduced mortality from diabetes or heart disease
- Decreased prevalence of tobacco use
- Decreased hospitalizations due to heart disease, diabetes, or arthritis.

Cancer Prevention and Control Budget Request

Cancer affects an estimated one in three Americans, either through their own diagnosis or that of a loved one. It is the second leading cause of death in the United States, resulting in over 592,000 deaths annually—more than 1,600 deaths each day.

Cancer affects every age group and is responsible for more years of life lost than all other causes of death combined. Because of an aging and growing population, the total number of new cancer cases is estimated to increase to 1.9 million in 2020. This represents a more than 20% increase in the number of annual cancer cases since 2010.

While advances in cancer detection and treatment help reduce the proportion of people who die from cancer, not everyone is benefitting equally. Significant disparities in cancer prevention, screening, early detection, and quality of care persist. More than half of the cancer deaths in the United States could be avoided if strategies promoting cancer screening, early detection, and prevention were fully adopted.

CDC works with state health departments, national cancer organizations, and other key groups to improve cancer prevention and early detection through interventions that help Americans lower their cancer risk and increase the use of recommended cancer screenings.

Budget Request

CDC's FY 2019 request of **$337,424,000** for Cancer Prevention and Control is $16,827,827 below the FY 2018 Annualized CR level. In FY 2019, the budget request includes dedicated funding to support: the National Breast and Cervical Cancer Early Detection Program (NBCCEDP); Breast Cancer Awareness for Young Women; Johanna's Law; National Program of Cancer Registries; National Comprehensive Cancer Control Program (NCCCP); and Cancer Survivorship Resource Centers. At this funding level, there is no dedicated funding for Colorectal, Prostate, and Skin Cancer. Through the Comprehensive Cancer program, CDC will support activities to more effectively address the overall risk factors associated with specific types of cancers.

National Breast and Cervical Cancer Early Detection Program (NBCCEDP)

Breast cancer is the most common cancer affecting women: in 2014, almost 240,000 women were diagnosed and more than 41,000 died from this disease. Cervical cancer is also an issue. In 2014, more than 12,500 women were diagnosed with cervical cancer and approximately 4,100 women died from the disease. Breast and cervical cancer screening are proven methods to find cancers early, when treatment is more effective. Unfortunately, persistently lower-than-optimal breast and cervical cancer screening rates, especially notable in some population sub-groups, continue to result in women being diagnosed at later stages and more deaths that may have been prevented.

CDC's National Breast and Cervical Cancer Early Detection Program (NBCCEDP) serves women who are uninsured or underinsured and at high risk for these cancers nationwide in 50 states, Washington D.C., 13 tribes/tribal organizations, and six U.S. territories. For cervical cancer screenings, these are women who have never or rarely been screened for cervical cancer. For breast cancer screenings, it is primarily women 50 years of age and older. NBCCEDP grantees implement evidence-based strategies to increase the number of women who access and complete the screening process.

For example, the Colorado Women's Wellness Connection (WWC) program—Colorado's breast and cervical cancer screening program—used funds to support navigation of breast and cervical cancer screenings at 26 clinics, enabling them to serve over 3,938 low-income women. This included over 3,740 women screened for breast cancer (with 60 breast cancer diagnoses) and over 2,359 women screened for cervical cancer (with 12 cervical cancer diagnoses). WWC also used funds to support assessment of cancer screening rates and implementation of evidence-based interventions in clinic systems across the state. In 2016, 3,780 additional

cervical cancer screenings and 1,659 additional breast cancer screenings were performed at clinics participating in the Clinic Quality Improvement for Population Health Initiative. On average, participating clinics where evidence-based interventions were successfully implemented saw a 13% increase in cervical cancer screening rates and 9% increase in breast cancer screening rates among their age appropriate patient populations.

In FY 2019, CDC will continue to fund grantees to support screenings for these women. Grantees will also help healthcare providers make improvements to healthcare delivery systems and increase the use of proven interventions to address barriers to screening (e.g., reminder systems, patient navigators).

Breast Cancer Awareness for Young Women

While breast cancer mostly occurs among older women, 11% of all cases in the United States are reported in women younger than 45 years of age. Risk for breast cancer among young women varies based on factors such as family and personal history of cancer.

CDC's Bring Your Brave campaign is a digital advertising and social media campaign aimed at raising awareness in young women about their risk. The campaign shares the stories of women affected by breast cancer. These stories about prevention; exploring a woman's own history and her family history of cancer; and talking with healthcare professionals bring to life the idea that young women can be affected by breast cancer—and that they can do something about managing their risk. Bring Your Brave has generated more than 100 million impressions on Twitter, Facebook, Pinterest and YouTube; almost 1.5 million video views; more than 265,000 visits to the Bring Your Brave website; more than 1 million engagements on social media through retweets, shares and conversations.

Johanna's Law

CDC's Inside Knowledge: Get the Facts About Gynecologic Cancer (Inside Knowledge) campaign supports the Gynecologic Cancer Education and Awareness Act of 2005, or Johanna's Law, which was signed into law on January 12, 2007. This campaign raises awareness of the five main types of gynecologic cancer: cervical, ovarian, uterine, vaginal, and vulvar. The campaign educates women of all ages, races, and ethnic groups, especially those aged 40 years and older, and healthcare providers about the signs, symptoms, risk factors, and prevention strategies related to gynecologic cancers. The campaign informs women that it is important for them to pay attention to their bodies and know what is normal for them so they can recognize the warning signs of gynecologic cancers. Inside Knowledge PSAs have generated 6.8 billion audience impressions worth more than $186 million in donated placements.

National Program of Cancer Registries

CDC's National Program of Cancer Registries (NPCR) provides the technical expertise and funding necessary for 46 states, Washington, D.C., Puerto Rico, the U.S. Pacific Island Jurisdictions, and the U.S. Virgin Islands to collect data about cancer cases and cancer deaths for 96% of the population. The NPCR provides researchers and federal, state, and local decision-makers with the data needed to:

- Define and monitor burden
- Identify trends in incidence
- Investigate patterns of cancer treatment
- Evaluate the effectiveness of investments to prevent cancer and to identify cancers early so there is a greater chance of survival.

States use registry data to better understand and address differences in cancer outcomes and to expand the reach of their screening and education programs. For example, the New York State Department of Health and its partners are creating a Cancer Prevention Registry for the state. Fifty health centers were connected to the cancer screening registry representing 78% of all Federally Qualified Health Centers (FQHCs) in New York state,

exceeding the project goal to connect 75% of health centers by the end of project year four. The first cohort has continued to see increases in screening rates for breast, cervical, and colorectal cancer (relative increase 8.8%, 14.2%, and 71.2% respectively). The second cohort saw initial increases in cervical cancer screening rates, which subsequently declined to the baseline rate. However, the cohort has continued to see gains in breast and colorectal cancer screening rates (relative increase from baseline 11.9% and 10.6% respectively). The third cohort has seen gains in screening rates for all three cancers (relative increase from baseline 11%, 11.5%, and 14% for breast, cervical, and colorectal respectively).

In FY 2019, CDC will fund the third year of a five-year cooperative agreement.

National Comprehensive Cancer Control Program

At least half of all cancer deaths can be prevented through adoption of healthier behaviors. CDC's National Comprehensive Cancer Control Program (NCCCP) awardees create tailored plans that support effective activities to prevent and reduce cancer within their state or jurisdiction. Priorities of the program—which funds 50 states and Washington, D.C., eight tribal organizations, and seven U.S. territories—are:

- Helping people who want to adopt healthier behaviors to do so, decreasing their cancer risk
- Assisting healthcare systems to improve access to cancer screening services and quality cancer care and treatment
- Improving quality of life for cancer survivors.

NCCCP awardees coordinate cancer prevention and control efforts, using local data to produce a cancer control plan tailored to the needs of that particular state or jurisdiction. Awardees convene coalitions of stakeholders from community and partner organizations, leverage resources, and develop and implement plans that prioritize evidence-based strategies. Awardees have flexibility to focus on the leading causes of cancer death and the major cancer killers, as well as other cancers and cancer risk factors for which clear public health prevention strategies exist.

In FY 2019, CDC will continue to support awardees to implement plans for reducing the highest burden cancers in their respective jurisdiction. Awardees will have the flexibility and opportunity to invest grant funds in efforts to address colorectal, prostate, and skin cancer as part of their cancer prevention and control activities.

Recent program accomplishments include:

- In FY2016, CDC's Colorectal Cancer Control Program grantees partnered with over 400 clinics that serve over 700,000 patients ages 50-75 to implement evidence-based interventions proven to help increase cancer screening. On average, colorectal screening rates in the partner clinics increased from 33% at baseline to 39% in one year. In contrast, national screening rates for the U.S. only increased approximately 1% over two years from 2012 (65.4%) to 2014 (66.3%).
- To reduce incidences of cervical cancer, the South Dakota Comprehensive Cancer Control Program partnered with other stakeholders to increase Human Papillomavirus (HPV) vaccination rates. Client reminders, provider assessment and feedback, and community education interventions resulted in increases in the number of youth who had received the initial dose of the vaccine from 52.4% in July 2015 to 65.2% in June 2016.
- Compared to the state average, American Indian populations in Michigan have higher smoking rates and start smoking at younger ages. The Michigan Comprehensive Cancer Control Program partnered with the Inter-Tribal Council of Michigan to develop and implement a clinic policy to screen youth (ages 12 – 18) in two tribes in the state for commercial tobacco use and to refer tobacco users to appropriate treatment services. This project resulted in increased capacity for tribal clinic providers to screen, educate, and refer young patients for cessation services, and increased screening and referral rates within the two tribal clinics. The Saginaw Chippewa Nimkee Wellness Center achieved a 100% screening

and referral rate. The Keweenaw Bay Indian Community built their policy into their electronic health record system and achieved a screening and referral rate of 71.6%.

Cancer Survivorship Resource Center

There are currently more than 15.5 million cancer survivors in the United States and this number is projected to increase to 26 million by 2040[20]. CDC works to address the needs of survivors by making cancer survivorship a public health priority, conducting epidemiological and applied research and surveillance, and supporting programs for survivors.

In 2017, CDC worked with partners on a variety of activities including: promoting smoking cessation for survivors to reduce risk of second cancers and improve their overall health; evaluating a self-management intervention for young survivors using patient navigation, care planning, and texting to promote adherence to care and lifestyle recommendations; and helping disseminate effective weight management and physical activity programs tailored to meet survivors' needs. In FY 2019, CDC will continue to work with public, non-profit, and private organizations to evaluate and disseminate promising practices and interventions to promote health and improve the quality of life of cancer survivors.

[20] Bluethmann SM, Mariotto AB, Rowland, JH. Anticipating the ''Silver Tsunami'': Prevalence Trajectories and Comorbidity Burden among Older Cancer Survivors in the United States. Cancer Epidemiol Biomarkers Prev. 2016;25:1029-1036.

National Diabetes Prevention Program Budget Request

About 30.3 million Americans have diabetes and each year another 1.7 million Americans ages 20 years or older are newly diagnosed. Additionally, CDC estimates that 84.1 million American adults—more than one of three—have pre-diabetes, a serious health condition that increases the risk of developing type 2 diabetes, heart disease, and stroke.

Living with diabetes is hard and can lead to premature death: annually, more than 250,000 people in the United States die from diabetes-related complications. Diabetes is also expensive. In 2012, the total estimated cost of diabetes was $245 billion, which included $176 billion in medical costs and $69 billion for costs due to reduced productivity because of disability, loss of work, and premature death[21].

CDC's National Diabetes Prevention Program (National DPP) puts into practice groundbreaking clinical trial findings that type 2 diabetes can be prevented or delayed through lifestyle changes by high-risk adults.

Budget Request

CDC's FY 2019 request of **$19,962,000** for the National Diabetes Prevention Program (National DPP) is $2,385,203 below the FY 2018 Annualized CR level.

CDC's National DPP is a partnership of public and private organizations working together to make it easier for people with pre-diabetes to participate in an evidence-based, affordable, and high-quality lifestyle change program. The National DPP focuses on four components:

- Training: build a workforce that can cost effectively implement the lifestyle change program
- Recognition: ensure quality and standardized reporting by program providers
- Intervention: delivery of the lifestyle change program through organizations nationwide
- Promotion: increase referrals to and participation in the lifestyle change program.

Individuals who participate in a lifestyle change program learn how to eat healthy without giving up all the foods they love; add physical activity to their life; deal with stress; and get back on track if they stray from their plan.

The funding request for FY 2019 will support CDC's efforts to:

- Fund national or regional organizations to establish and sustain new CDC-recognized diabetes prevention programs in underserved areas of the country and to reach priority populations, including those in rural areas and those at high risk for type 2 diabetes.
- Maintain a National DPP Customer Service Center to expand technical assistance and training for CDC-recognized program delivery organizations, employers, insurers, healthcare systems, and other key stakeholders.
- Conduct the data collection and analysis for ongoing monitoring of program quality for the National DPP through the CDC Diabetes Recognition Program.
- Implement the national CDC Diabetes Prevention Recognition Program Standards to align with the Centers for Medicare and Medicaid Services' expansion of the Medicare Diabetes Prevention Program as a covered service for Medicare beneficiaries with prediabetes, effective in 2018.

Accomplishments of the National DPP include:

- Approximately 1,500 organizations have received CDC recognition and served nearly 160,000 participants.

[21] American Diabetes Association, Economic Costs of Diabetes in the U.S. in 2013. Diabetes Care 2013; 36:1033-1046, 2013.

- In March 2016, the Centers for Medicare and Medicaid Services (CMS) certified the expansion of the National DPP into the Medicare program. This is the first preventive service model from the CMS Innovation Center to become eligible for expansion—a landmark for public health. CDC collaborated with the CMS Innovation Center on the model test as a subject matter expert, providing data from our applied research studies and from the CDC Diabetes Prevention Recognition Program to inform actuarial certification of the model. Approximately 23 million American adults with prediabetes are 65 years or older and could directly benefit from this program.

Safe Motherhood and Infant Health Budget Request

For over 50 years, CDC has worked to improve the health of moms and babies by promoting optimal and equitable health through surveillance, science and service. This effort not only supports societal goals, but makes financial sense: preterm births (less than 37 weeks) cost the U.S. healthcare system more than $26 billion per year, and the annual cost of unintended pregnancy is approximately $21 billion[22,23].

Budget Request

CDC's FY 2019 request of **$46,000,000** for Safe Motherhood and Infant Health is $312,386 above the FY 2018 Annualized CR level.

In FY 2019, CDC will continue to support Safe Motherhood and Infant Health, focusing on the following activities:

- Perinatal Quality Collaboratives (PQCs): Support 13 states to improve the quality of maternity care and health outcomes for women and newborns. Projects in the PQCs include studying the utilization of progesterone to reduce recurrent preterm birth, efforts to address preeclampsia (dangerously high blood pressure during and after pregnancy), and reducing hospital stays and length of treatment for newborns experiencing symptoms of drug withdrawal (Neonatal Abstinence Syndrome).
- Sudden Unexpected Infant Death (SUID) Case Registry: Support 8 states to provide comprehensive information about the circumstances associated with SUID and sleep-related infant deaths. This information can be used to develop targeted prevention and intervention strategies and improve data collection by medical and law enforcement personnel.
- Maternal Mortality Surveillance: CDC's Pregnancy Mortality Surveillance System is a national surveillance system for pregnancy-related deaths to help us better understand circumstances surrounding these deaths. CDC also provides technical assistance to state Maternal Mortality Review Committees to support data collection and data-driven action.
- Monitor Assisted Reproductive Technology (ART): Collect data through the National ART Surveillance System (NASS) from every clinic in the United States that uses ART to treat infertility.
- Pregnancy Risk Assessment Monitoring System (PRAMS): Support 48 states, New York City, Washington, D.C., Puerto Rico, and the Great Plain Tribal Chairmen's Health Board to collect data through PRAMS. This data identifies factors that put women and infants at risk for health problems; monitors access to care and services; identifies trends in behavior and health status; and measures progress in improving the health of mothers and infants.

Pregnancy Risk Assessment Monitoring System (PRAMS) Grants[1]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	51	51	51
- New Awards	0	0	0
- Continuing Awards	51	51	51
Average Award	$0.166	$0.166	$0.166
Range of Awards	$0.122– $0.158	$0.122– $0.158	$0.122– $0.158
Total Awards	$7.000	$7.000	$7.000

[1] These funds are not awarded by formula.

[22] Behrman RE, and Butler AS. Preterm Birth: Causes, Consequences, and Prevention. Institute of Medicine, 2007.

[23] Sonfield A and Kost K. Public Costs from Unintended Pregnancies and the Role of Public Insurance Programs in Paying for Pregnancy-Related Care: National and State Estimates for 2010, New York: Guttmacher Institute, 2015.

Oral Health Budget Request

Dental cavities, when left untreated, can cause pain, infection, and problems with eating, speaking, and learning. Dental sealants prevent 80% of cavities in the back teeth (where 9 in 10 cavities occur). Although the number of students in the United States with sealants has increased over time, low-income children are 20% less likely to receive sealants and twice as likely to have untreated cavities as higher income children.

CDC's oral health program supports states to reduce differences in the rate of cavities and oral diseases among youth in different population groups, and to integrate oral health programs into chronic disease prevention efforts and medical care services. CDC focuses resources on children at high-risk for oral health problems through school-based dental sealant programs in schools where at least 50% of students participate in free and reduced-cost meal programs.

In addition, CDC promotes science-based interventions that prevent decay and promote oral health, including community water fluoridation, one of the most practical, cost-effective, and safe measures communities can take to prevent cavities and improve the oral health of all residents. CDC develops and promotes guidelines for infection prevention and control in dental settings, as well as tools and resources to increase adherence to guidelines. CDC investigates possible disease transmission in dental offices. CDC also hosts a Dental Public Health Residency Program to support workforce development by training skilled specialists in dental public health who can work collaboratively with their public health and dental colleagues in an array of health settings to achieve improved oral health for populations.

Budget Request

CDC's FY 2019 request of **$17,000,000** for Oral Health is $877,762 below the FY 2018 Annualized CR level.

In FY 2019, CDC will continue funding a 5-year funding opportunity, building on strengths and successes from prior state awards and a pilot project to test models of collaboration between state chronic disease prevention and oral health programs. These resources, plus technical assistance and training, help states promote good oral health, track oral health behaviors and problems, and conduct and evaluate prevention programs.

CDC will also continue to conduct research, analysis, and translation of national- and state-level data on oral disease burden, dental care service use, preventive services, and cost-effectiveness analyses.

Oral Health Grant Program [1,2]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	27	20	20
- New Awards	0	20	0
- Continuing Awards	27	0	20
Average Award	$0.289	$0.420	$0.420
Range of Awards	$0.200–$0.350	$0.150-$0.570	$0.150-$570
Total Awards	$8.469	$8.410	$8.410

[1]These funds are not awarded by formula.

[2]A new cooperative agreement will launch in FY 2018. Awards include two to national organizations that will provide technical assistance to state grantees.

Other Chronic Disease Prevention Budget Request

Many chronic conditions warrant monitoring and investigation as a consequence of the burden they place on individuals and their caregivers, and the need for increased understanding of their prevalence and disease progression.

Alzheimer's disease, for example, is the most common form of dementia. It involves parts of the brain that control thought, memory, and language, and can seriously impair a person's ability to carry out activities of daily living. Alzheimer's disease is the sixth leading cause of death for all Americans, and rates of Alzheimer's disease deaths have increased more than 50% since 1999. In 2017, as many as 5.5 million Americans were living with Alzheimer's disease. By 2050, 14 million Americans are expected to have Alzheimer's disease, a nearly three-fold increase. Alzheimer's disease affects more than just the individual diagnosed. More than 15 million Americans provide more than 18 billion hours of unpaid care for family and friends with Alzheimer's disease and other dementias. The total value of that unpaid care is estimated to be more than $230 billion[24,25].

Budget Request

CDC's FY 2019 request of **$3,493,000** for Other Chronic Disease Prevention activities is $24,838,287 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed elimination of Glaucoma, Visual Screening Education, Inflammatory Bowel Disease, Interstitial Cystitis, Excessive Alcohol Use, Chronic Kidney Disease, Epilepsy, and the National Lupus Patient Registry from the FY 2018 President's Budget Request. Funding will support Alzheimer's disease activities.

Alzheimer's Disease

In 2013, CDC and its partners released "The Public Health Road Map for State and National Partnerships, 2013–2018"[26] (Road Map) detailing key activities for state and local public health agencies to address cognitive impairment and caregiving, and increase cognitive health awareness among the public and health professionals. The Road Map aligns with the U.S. Department of Health and Human Services' congressionally-mandated National Plan to Address Alzheimer's Disease. The Road Map is under revision and the 2018-2023 action items will be released mid-2018, with an emphasis on diagnosis of Alzheimer's disease and diagnosis disclosure, risk reduction for Alzheimer's disease, and caregiving for persons with Alzheimer's disease.[27]

In FY 2019, CDC will continue to use funding to support two national groups—the Alzheimer's Association and the Balm in Gilead—to promote implementation of the Road Map at the national, state, and local levels. FY 2019 funding will also support states and territories to collect, analyze, and disseminate data from CDC's state Behavioral Risk Factor Surveillance System (BRFSS) on cognitive decline and adult caregiving, as well as cognitive functioning on the National Health and Nutrition Examination Survey (NHANES). The data provide information on adult perceptions about subjective cognitive decline, and the provision of regular care or assistance to family and friends with a chronic illness or disability. CDC and its partners developed and widely disseminated state-specific products with the data. CDC has updated its Healthy Aging Data Portal[28] to provide easy access to data on key indicators of cognitive and physical health and well-being, screenings and vaccinations, and older adult mental health.

[24] Hebert LE, Weuve J, Scherr PA, Evans DL. Alzheimer disease in the United States (2010–2050) estimated using the 2010 census. Neurology. 2013;80:1778-83.
[25] Alzheimer's Association. 2017 Alzheimer's Disease Facts and Figures. Accessed on January 30, 2018. https://www.alz.org/documents_custom/2017-facts-and-figures.pdf
[26] http://www.cdc.gov/aging/pdf/2013-healthy-brain-initiative.pdf
[27] http://aspe.hhs.gov/daltcp/napa/NatlPlan2013.pdf
[28] http://www.cdc.gov/aging/agingdata/index.html

School Health Budget Request

CDC plays a unique role in bringing together the education and public health sectors by supporting opportunities for quality physical education and physical activity, healthy nutrition opportunities, management of chronic conditions, and overall health education. Improving students' health also means improving academic achievement and behavioral outcomes, reducing absenteeism, and increasing kids' connections to their school and community.

Very few of our nation's children are meeting basic nutrition and physical activity recommendations. According to the 2015 Youth Risk Behavior Survey, 1 in 3 U.S. high school students are overweight or obese. In addition, 25% of students are affected by a chronic condition, such as obesity, asthma, epilepsy, or diabetes.

CDC's Healthy Schools program provides science-based guidance, tools, and training for states, parents, and communities to improve student health. Students graduating healthy means they are ready to learn, work, and serve their community and nation.

Budget Request

CDC's FY 2019 request of **$15,371,000** for School Health is $76,000 above the FY 2018 Annualized CR level. With this funding, CDC's Healthy Schools program will continue to support states, schools and school districts, and non-governmental organizations, to improve health outcomes for K-12 students and improve the management of students' chronic conditions.

Addressing Childhood Obesity in Schools

CDC's Healthy Schools Program focuses on childhood obesity prevention through support for physical education, physical activity, and improved nutrition. In addition, CDC develops resources to help schools and school groups engage parents in how to support healthier choices for their children and how to model these choices at home. CDC also supports referrals to community and medical providers to reduce childhood obesity. For schools that assess student body mass index (BMI), CDC provides guidelines to effectively communicate weight status to parents, link families to resources, and reduce the potential for stigma. CDC will continue to support these activities in FY 2019.

Physical Education and Activity

CDC tools, training, and funded partners support schools to incorporate more physical activity throughout the school day. CDC promotes a Comprehensive School Physical Activity Program (CSPAP) which helps schools incorporate more opportunities for students to be physically active, meet the nationally-recommended 60 minutes of physical activity each day, and develop the knowledge, skills, and confidence to be physically active for a lifetime. This includes quality physical education; physical activity before (e.g., Safe Routes to School), during (e.g., recess and physical activity breaks), and after school (e.g., active aftercare options, interscholastic sports, running clubs); staff involvement; and family and community engagement.

Improved Nutrition

CDC provides schools with tools and training to create a school nutrition environment that allows students to make healthier choices. Recent surveys show that more schools are using strategies to increase fresh fruit and vegetable offerings, decrease sodium content in school meals, and reduce promotion of unhealthy foods. Nutrition education helps support these choices and develop life-long healthy habits. In addition, CDC tools and resources help schools increase the availability of drinking water, and increase water consumption as a healthy beverage option. These efforts are succeeding, with 88% of schools now providing students with access to free drinking water (e.g., water bottle refilling stations) in cafeterias during meal times.

School Health Services and Managing Chronic Conditions

Students who are able to manage their chronic health conditions tend to have better academic outcomes. CDC promotes family engagement, care coordination, and communication with the student's healthcare provider as essential components for helping students with chronic conditions stay healthy and ready to learn. In addition, CDC-funded states assess and update their policies and practices to better support students with chronic conditions and develop action plans. This has resulted in increased: training for school health services staff (e.g., diabetes management and managing food allergies in schools); understanding the causes of school absence; and the number of students with chronic conditions who have a primary care physician who coordinates their care.

State Table: National Breast and Cervical Cancer Early Detection Program[1,2]

	FY 2017 Estimate	FY 2018 Estimate	FY 2019	FY 2019 +/- 2018
Alabama	$3,400,000	$3,400,000	$3,400,000	$0
Alaska	$2,204,831	$2,204,831	$2,204,831	$0
Arizona	$3,046,185	$3,046,185	$3,046,185	$0
Arkansas	$1,800,000	$1,800,000	$1,800,000	$0
California	$7,721,730	$7,721,730	$7,721,730	$0
Colorado	$2,000,000	$2,000,000	$2,000,000	$0
Connecticut	$1,200,000	$1,200,000	$1,200,000	$0
Delaware	$900,000	$900,000	$900,000	$0
Florida	$6,000,000	$6,000,000	$6,000,000	$0
Georgia	$4,573,261	$4,573,261	$4,573,261	$0
Hawaii	$1,000,000	$1,000,000	$1,000,000	$0
Idaho	$1,450,000	$1,450,000	$1,450,000	$0
Illinois	$7,000,000	$7,000,000	$7,000,000	$0
Indiana	$1,800,000	$1,800,000	$1,800,000	$0
Iowa	$2,000,000	$2,000,000	$2,000,000	$0
Kansas	$2,700,000	$2,700,000	$2,700,000	$0
Kentucky	$2,500,000	$2,500,000	$2,500,000	$0
Louisiana	$1,900,000	$1,900,000	$1,900,000	$0
Maine	$1,600,000	$1,600,000	$1,600,000	$0
Maryland	$3,900,000	$3,900,000	$3,900,000	$0
Massachusetts	$1,950,000	$1,950,000	$1,950,000	$0
Michigan	$4,400,000	$4,400,000	$4,400,000	$0
Minnesota	$3,950,000	$3,950,000	$3,950,000	$0
Mississippi	$2,300,000	$2,300,000	$2,300,000	$0
Missouri	$2,700,000	$2,700,000	$2,700,000	$0
Montana	$1,900,000	$1,900,000	$1,900,000	$0
Nebraska	$2,900,000	$2,900,000	$2,900,000	$0
Nevada	$3,000,000	$3,000,000	$3,000,000	$0
New Hampshire	$1,400,000	$1,400,000	$1,400,000	$0
New Jersey	$2,000,000	$2,000,000	$2,000,000	$0
New Mexico	$2,322,430	$2,322,430	$2,322,430	$0
New York	$7,500,000	$7,500,000	$7,500,000	$0
North Carolina	$2,900,000	$2,900,000	$2,900,000	$0
North Dakota	$1,500,000	$1,500,000	$1,500,000	$0
Ohio	$3,214,755	$3,214,755	$3,214,755	$0
Oklahoma	$1,133,193	$1,133,193	$1,133,193	$0
Oregon	$2,000,000	$2,000,000	$2,000,000	$0
Pennsylvania	$2,448,978	$2,448,978	$2,448,978	$0
Rhode Island	$1,512,970	$1,512,970	$1,512,970	$0
South Carolina	$4,500,000	$4,500,000	$4,500,000	$0
South Dakota	$952,161	$952,161	$952,161	$0
Tennessee	$2,086,375	$2,086,375	$2,086,375	$0
Texas	$5,700,000	$5,700,000	$5,700,000	$0
Utah	$2,900,000	$2,900,000	$2,900,000	$0
Vermont	$844,342	$844,342	$844,342	$0
Virginia	$2,590,163	$2,590,163	$2,590,163	$0
Washington	$5,500,000	$5,500,000	$5,500,000	$0
West Virginia	$1,900,000	$1,900,000	$1,900,000	$0
Wisconsin	$2,200,000	$2,200,000	$2,200,000	$0
Wyoming	$800,000	$800,000	$800,000	$0

	FY 2017 Estimate	FY 2018 Estimate	FY 2019	FY 2019 +/- 2018
Territories				
American Samoa	$360,926	$360,926	$360,926	$0
Guam	$467,529	$467,529	$467,529	$0
Marshall Islands	$137,500	$137,500	$137,500	$0
Northern Mariana Islands	$400,000	$400,000	$400,000	$0
Palau	$700,000	$700,000	$700,000	$0
Other Grantees	$11,332,671	$11,332,671	$11,332,671	$0
Indian Tribes	$10,092,310	$10,092,310	$10,092,310	$0
University of Puerto Rico	$390,361	$390,361	$390,361	$0
Washington, D.C.	$850,000	$850,000	$850,000	$0
Subtotal, States	$139,701,374	$139,701,374	$139,701,374	$0
Subtotal, Territories	$2,065,955	$2,065,955	$2,065,955	$0
Subtotal, Other Grantees	$11,332,671	$11,332,671	$11,332,671	$0
Total	**$153,100,000**	**$153,100,000**	**$153,100,000**	**$0**

[1]This state table is a snapshot of selected programs that fund most states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit http://wwwn.cdc.gov/Fundingprofiles/FundingProfilesRIA/.

[2]A new FOA was competed in FY 2017.

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BIRTH DEFECTS, DEVELOPMENTAL DISABILITIES, DISABILITIES AND HEALTH

(dollars in millions)

	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$137.242	$136.626	$110.000	-$26.626
FTEs	186	143	143	0

Enabling Legislation Citation: PHSA Title II §§ 301, 304, 307, 308(d), 310, 311, 317, 317C(a)*, 317J*, 317K*, 317L*, 317Q, 327, 352, 399M, 399Q*, 399S, 399T, 399V-2*, 399AA*, 399BB, 399CC; 1102,1110, 1112-1114, Title XI, Title XVII*; The Prematurity Research Expansion And Education For Mothers Who Deliver Infants Early Act §§ 3,5 (42 U.S.C. 247b-4f* and 42 U.S.C. 247b-4g)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Competitive Grants, Cooperative Agreements and Contracts

CDC's birth defects, developmental disability, and blood disorders programs advance CDC's mission of preventing the leading causes of disease, disability, and death, while promoting the health of people of all ages.

CDC enriches the quality of life for America's young and most vulnerable populations while reducing healthcare costs by:

- Studying and addressing the causes of birth defects
- Helping children reach their potential by understanding developmental disabilities
- Reducing complications of blood disorders
- Improving the health of people living with disabilities

BIRTH DEFECTS, DEVELOPMENTAL DISABILITIES, DISABILITIES AND HEALTH

BY THE NUMBERS…

CDC's mission to promote the health of babies, children, and adults is driven by the fact that:

- In one hour, 450 babies will be born, and of these babies:
  - 15 will have a major birth defect including 1 with congenital deafness[1]
  - 7 will be diagnosed with autism by kindergarten[2]
  - 6 of their peers will be identified with one of the many complex genetic conditions (Sickle Cell Disease, Muscular Dystrophy, and Hemophilia)[3]
  - 46 will be identified with Attention-Deficit/Hyperactivity Disorder (ADHD) as they move through grade school[4]
- In addition, nationwide:
  - One in 33 babies are born with a major birth defect[1,5]
  - One in 6 children have developmental disabilities[6]
  - Millions of people are affected by blood disorders like hemophilia and venous thromboembolism[7]
  - 57 million Americans live with a disability—approximately equivalent to the combined populations of New York and California[8]

References:

[1,5] L Rynn, J Cragan, MD, A Correa, MD, PhD, Div of Birth Defects and Developmental Disabilities, National Center on Birth Defects and Developmental Disabilities, CDC. "Update on Overall Prevalence of Major Birth Defects --- Atlanta, Georgia, 1978—2005". Available at https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5701a2.htmFirst Reference

[2] Christensen DL, Baio J, Braun KV, et al. Prevalence and Characteristics of Autism Spectrum Disorder Among Children Aged 8 Years — Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2012. MMWR Surveill Summ 2016;65(No. SS-3)(No. SS-3):1–23. DOI: http://dx.doi.org/10.15585/mmwr.ss6503a1.

[3] B Therrell, National Newborn Screening and Genetics Resource Center, Austin, Texas. F Lorey, Genetic Diseases Laboratory, California Dept of Health Svcs. R Eaton, Univ of Massachusetts Medical School, Boston, Massachusetts. D Frazier, Div of Genetics and Metabolism, Univ of North Carolina at Chapel Hill. G Hoffman, Wisconsin State Laboratory of Hygiene. C Boyle, D Green, Div of Birth Defects and Developmental Disabilities, O Devine, National Center for Birth Defects and Developmental Disabilities; H Hannon, Div of Laboratory Sciences, National Center for Environmental Health, CDC.(2008, September 19). *Impact of Expanded Newborn Screening --- United States, 2006*. Available at https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5737a2.htm

[4] Division of Human Development and Disability, National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention (2017, November 13). *Attention-Deficit / Hyperactivity Disorder (ADHD), Data and Statistics*. Available at https://www.cdc.gov/ncbddd/adhd/data.html

[6] Coleen A. Boyle, Sheree Boulet, Laura A. Schieve, Robin A. Cohen, Stephen J. Blumberg, Marshalyn Yeargin-Allsopp, Susanna Visser, Michael D. Kogan " Trends in the Prevalence of Developmental Disabilities in US Children, 1997–2008". Available at http://pediatrics.aappublications.org/content/early/2011/05/19/peds.2010-2989

[7] CDC, National Center on Birth Defects and Developmental Disabilities (NCBDDD) (2017, September 19). *Protecting People*. Available at https://www.cdc.gov/ncbddd/aboutus/protecting-people/index.html

[8] Brault, Matthew W., "Americans With Disabilities: 2010," Current Population Reports, P70-131, U.S. Census Bureau, Washington, DC, 2012. Available at http://www.nasuad.org/sites/nasuad/files/hcbs/files/218/10869/Americans_with_disabilities_2010.pdf; access January 7, 2015. Based on Survey of Income and Program Participation, U.S. Census Bureau, 2010.

Birth Defects and Developmental Disabilities Funding History	
Fiscal Year	Dollars (in millions)
2015	$131.781
2016	$135.610
2017 Final	$137.242
2018 Annualized CR	$136.626
2019 President's Budget	$110.000

Budget Request

CDC's FY 2019 request of **$110,000,000** for Birth Defects, Developmental Disabilities, Disabilities and Health, is $26,625,830 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions from the FY 2018 President's Budget Request. This request also includes $10,000,000 in new resources to support and improve ongoing innovative surveillance approaches to address the consequences of the 2016 Zika outbreak and other emerging threats to mothers and babies. At the proposed FY 2019 funding level, CDC will focus its birth defects and developmental disabilities portfolio on core public health activities that align with CDC's mission and have proven interventions to make a positive impact on American's health.

Surveillance for Emerging Threats to Mothers and Babies

In FY 2019, CDC is requesting **$10,000,000** in new resources for Surveillance for Emerging Threats to Mothers and Babies. Emerging disease outbreaks are becoming more frequent and less predictable. From H1N1 to Ebola to Zika, CDC and the entire public health and medical community have faced a series of complex and unpredictable health emergencies. This past two years served as a reminder of the vulnerability of mothers and babies to emerging infectious diseases and the destructive and disturbing consequences of major birth defects that can result from infections during pregnancy. Zika, like rubella decades before, has once again shown how an infection can lead to dreadful and devastating birth defects and lifelong hardship and challenges for families impacted by the infection.

While the complete impact of Zika is not yet fully known, it can cause infants to have specific brain abnormalities including intracranial calcifications, abnormal cortical formation, corpus callosum abnormalities, and ventriculomegaly. The most common eye abnormalities in infants with Congenital Zika infection[29] include optic nerve hypoplasia, chorioretinopathy with macular scarring, and gross pigmentary mottling. Congenital hearing loss has been reported in a significant percentage of infants with Congenital Zika virus infection and microcephaly, and it is unknown what percentage of infants without microcephaly will have hearing or vision loss. Some of these birth defects and disabilities may be apparent at birth, but if Zika is similar to other infections that harm babies during pregnancy, many of the harmful effects will not be seen for months or even years into childhood. That is why infants with congenital exposure to Zika virus need follow up and screening for brain and eye abnormalities, for development delays, and for hearing loss, even if they do not appear to be initially affected, to ensure rapid connection to early care and specialized services. While many questions remain about the full range of disabilities and the long-term effects of Zika on children following infection during

[29] https://www.cdc.gov/zika/hc-providers/infants-children/zika-syndrome-birth-defects.html

pregnancy, screening and follow-up can provide vital opportunities for these children to reach their full potential.

The creation and implementation of the innovative surveillance of the Zika pregnancy and infant registry[30] represents a major paradigm shift to ensure that mothers and babies are adequately monitored and quickly informed about the impact of an emerging threat including serious birth defects. This enhanced surveillance network coordinated by CDC in collaboration with state, tribal, territorial, and local health departments should continue to monitor mothers and babies for the impact of Zika and can be leveraged for other emerging infectious diseases (e.g., pandemic influenza) and other emerging threats (e.g., opioid use during pregnancy and neonatal abstinence syndrome). This approach is unique to public health because the data are rapidly used to inform public health action to help mothers and babies. This action includes prevention strategies, clinical guidance, enhanced follow-up, and targeted screening and evaluation for infants with congenital Zika virus exposure or other maternal exposures, and identification of medical and early interventions to help children thrive.

In FY 2019, CDC will:

- Support Zika Pregnancy and Infant Registry in 4-8 highest risk jurisdictions. In addition, the capacity established for Zika can be leveraged to address other potential infectious disease threats, such as influenza, which may occur and can support ongoing efforts to address another critical newborn problem, such as neonatal abstinence syndrome (NAS). One to two jurisdictions could pilot this innovative surveillance/registry for additional emerging threats to mothers and babies.
- Continue on-site targeted support for local health departments with the Zika pregnancy and infant registry in jurisdictions at highest risk. A locally placed field assignee will assist local health departments facing challenges with clinical and community outreach/education; testing and follow-up of mothers and infants; registry reporting for mothers and infants; referral to services for affected families; and follow up of babies potentially impacted by Zika including those with serious Zika-associated birth defects.
- Work collaboratively with state, local, and territorial health departments to extend the follow up of babies born to mothers with evidence of Zika infection to better understand the full impact of Zika on child development, and might potentially include follow up to age 8. These children will require ongoing screening and intervention to discover impact of Zika infection. Some of the impacts of Zika will be physical and some will be developmental, and the true extent of these impacts are not currently known.
- Work with clinical experts and clinical professional organizations to develop recommendations for enhanced follow up and targeted screening and evaluation of infants with congenital Zika virus exposure. This will likely include enhanced ophthalmological screening, follow up screening for hearing beyond the newborn period, and other screening as full range of impacts are discovered. In partnership with clinical professional organizations, CDC would monitor implementation of recommendations in clinical practice.
- Develop and disseminate clinical guidance and health communications materials and tools for mothers and babies and their providers when new evidence emerges.
- Develop a pilot in 2-4 jurisdictions to extend the registry to capture other emerging threats.

[30] https://www.cdc.gov/pregnancy/zika/research/registry.html

Birth Defects

Birth defects are common, costly, and critical. Every 4 ½ minutes, a baby is born with a major birth defect in the United States. That is approximately 1 in every 33 babies—or 120,000 babies every year.[31] In the United States, more than $23 billion per year is spent on hospital costs for the treatment of birth defects[32]. Babies born with a birth defect are much more likely to die before their first birthday, while those who survive are likely to have lifelong challenges, such as problems with physical movement, learning, and social interaction.

Through science, surveillance, and service, CDC and its partners are changing these figures. CDC is able to prevent birth defects and help children and adults with birth defects through collaborative efforts that unites scientists and researchers throughout the United States. Together, these groups identify causes of birth defects, find opportunities to prevent them, and improve the health of those living with birth defects. Our state and local collaborations alert us to trends, tell us who is affected, provide clues to prevention, and help measure our success. Our prevention programs translate these findings into actions that women, healthcare providers, and decision makers can take to help ensure babies are born healthy.

CDC's commitment to addressing birth defects resulted in these important findings:

- Found associations between certain medications, such as opioids, and major birth defects.
- Confirmed the role of smoking in the causes of cleft lip and palate.
- Verified the role of pre-pregnancy obesity as a risk factor for major birth defects.
- Confirmed the causal link between Zika and major birth defects such as brain abnormalities and microcephaly.

As we learn more about causes of birth defects, CDC implements proven strategies to prevent them. As a result:

- Between 600-700 American babies are born without spina bifida (a neural tube defect) every year as a result of folic acid fortification.[33] This represents a savings of about $400 - $600 million every year.[34]
- The FDA approved corn masa flour fortification and allowed producers to include folic acid in their products, addressing the higher rates of neural tube defects among Hispanic babies.
- Mothers and babies have been protected from Zika infection by recommendations that pregnant women not travel to areas with risk of Zika as well as knowledge about preventing mosquito-borne and sexual transmission of the virus.

In FY 2019, CDC will continue to build upon the science needed to develop and strengthen birth defects prevention strategies. CDC will primarily support birth defects surveillance, public health research, intervention, and prevention activities.

Protecting Mothers and Babies from the Zika Virus

Over the last 50 years, thalidomide and rubella called our attention to the need to better understand causes of birth defects and how to prevent them, and to strengthen our national birth defects monitoring system. The emergence of the threat of Zika virus again proved the importance of the CDC birth defects monitoring system. There is a critical need to build on current surveillance systems and birth defects expertise to rapidly identify,

[31] https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5701a2.htm
[32] Arth AC, Tinker SC, Simeone RM, Ailes EC, Cragan JD, Grosse SD. Inpatient Hospitalization Costs Associated with Birth Defects Among Persons of All Ages — United States, 2013. MMWR Morb Mortal Wkly Rep 2017;66:41–46. DOI: http://dx.doi.org/10.15585/mmwr.mm6602a1.
[33] https://www.cdc.gov/ncbddd/folicacid/faqs/faqs-fortification.html
[34] Grosse SD, Berry RJ, Tilford JM, Kucik JE, Waitzman NJ. Retrospective assessment of cost savings from prevention: Folic acid fortification and spina bifida in the U.S. American Journal of Preventive Medicine. January 2016 [epub ahead of print].

understand, and prevent emerging threats to protect every baby in every city, state, and territory before another epidemic hits the next generation.

Zika virus highlighted the fact that mothers and babies are often among the most vulnerable to infectious disease threats with higher rates of resulting death and disability. CDC rapidly and strategically addressed the Zika outbreak through blending of our world-class expertise in both the science of birth defects and the implementation of an emergency response. In less than three months, CDC knew Zika infection was a cause of serious brain defects. Recent CDC data show that about 5-10% of women with Zika in early pregnancy will have babies with birth defects associated with Zika diagnosed during the newborn hospitalization, with data still emerging on the full extent of disabilities caused by Zika[35]. CDC subject matter experts rapidly built two innovative networks to guide our nation's response protecting pregnant women and their babies and ensuring babies get the help they need as early as possible.

- **US Zika Pregnancy and Infant Registry**[36]: This innovative surveillance system coordinated by CDC in collaboration with state, tribal, territorial, and local health departments, monitors the effect of Zika virus infection during pregnancy on fetal and infant outcomes. It includes longitudinal data linking mothers and babies from all states and territories. CDC works with states and territories in defined regions to collect data on cases of pregnant women with laboratory evidence of Zika virus infection and their infants, and follow infants through at least 2 years of life. This surveillance system collects pregnancy-related information that is not currently available through standard case reporting such as gestational age, pregnancy exposures, and pregnancy outcomes, and links data between mothers and babies. As CDC continues to increase knowledge on the full range of disabilities associated with Zika infection during pregnancy, follow-up on all children is essential, which includes evaluation for brain abnormalities, vision loss, hearing loss, and developmental disabilities.
- **Rapid Zika Birth Defects Surveillance**[37]: CDC's rapid Zika Birth Defects Surveillance collects information in collaboration with state, tribal, territorial, and local health departments to identify all infants who have a birth defect that is associated with Zika, regardless of whether or not they were tested for Zika or had evidence of infection. These birth defects include brain and eye abnormalities, central nervous system defects, congenital contractures, and congenital deafness. This surveillance system identifies babies who may have birth defects associated with Zika virus even if their mother never had any Zika symptoms during pregnancy or was not tested for Zika. This is particularly important as most people who have Zika never have any symptoms or only have mild symptoms and may not realize their baby has been exposed.

These surveillance systems helped CDC recognize the full impact of Zika and understand the birth defects the virus can cause. They are essential to improve Zika testing, inform healthcare providers on best practices for care for pregnant women, connect children for services they need as early as possible, and help agencies prepare to care for these children and their families.

Protecting Babies from Opioid Exposure

In partnership with the March of Dimes, CDC works to protect babies from opioid exposure. Opioid use and abuse have increased dramatically in recent years, particularly among women.[38] CDC researchers found between 2008 and 2012, about 1 in 3 women of reproductive age (15-44 years old) filled a prescription for an opioid medication[39]. High rates of opioid use during pregnancy is a significant public health concern, not only for

[35] https://www.cdc.gov/mmwr/volumes/66/wr/mm6613e1.htm
[36] https://www.cdc.gov/pregnancy/zika/research/registry.html
[37] https://www.cdc.gov/pregnancy/zika/research/birth-defects.html
[38] Maternal Use of Opioids During Pregnancy and Congenital Malformations: A Systematic Review
[39] Ailes EC, Dawson AD, Lind JN, Gilboa SM, Frey MT, Broussard CS, and Honein MA. CDC. Opioid prescription claims among women of reproductive age — United States, 2008–2012. MMWR. 2015 Jan 23;64(2):37-41.

women, but also for their babies. Opioids are passed from mother to baby through the placenta, increasing the risk for neonatal abstinence syndrome (NAS) and birth defects. A complete understanding of the consequences of opioid exposure for mothers and babies is still emerging. CDC's expertise on the opioid epidemic and collaborative work with partners, other federal agencies, and the public is helping to inform clinical management decisions for mothers and babies and their healthcare providers. The impact of opioid use during pregnancy potentially includes birth defects and developmental disabilities and thus requires CDC's birth defects expertise to track babies born with potential opioid exposure and anticipate long-term implications and service needs for babies, families, and communities.

In FY 2019, CDC will continue sharing findings from research in partnership with the March of Dimes and collaborators in Tennessee to understand the long-term outcomes potentially associated with NAS. This project is the first look at connections between NAS and educational outcomes in children in the U.S. Additionally, projects in partnerships with the March of Dimes in three states with high rates of NAS, Illinois, New Mexico, and Vermont, will continue reporting on findings and implications from enhanced identification of babies born with NAS and evaluate the health services needed by these babies through one year of age. This will guide surveillance methods and help better understand the scope of the opioid epidemic's impact on young children. These projects will prepare health and social services for potential future needs of children and families.

Developmental Disabilities

Developmental disabilities are among the most significant child health issues facing American families. They include conditions like autism spectrum disorder (ASD), hearing loss, and Attention-Deficit/Hyperactivity Disorder. These conditions begin during the developmental period, may impact day-to-day functioning, and usually last throughout a person's lifetime. CDC helps children reach their full potential by providing families, educators, health care providers, and community leaders with a comprehensive understanding of these conditions and offering the information that guides decisions so children and their families get the support they need.

Autism Spectrum Disorder

CDC data found that 1 in 68 children in the United States have ASD.[40] CDC analyses also show that parenting a child with ASD is associated with high stress[41]. The costs of medical care, special education services, therapy, caregiver time and other expenses were estimated to be between $11.5 billion - $60.9 billion (2011 US dollars)[42]. CDC's investments in monitoring, research, and improved early identification are leading us to a better understanding of ASD and better results for children and their families. CDC's tracking and monitoring provide the nation's clearest picture of the real impact of autism on families and communities and are the foundation for national, state, and local policy and planning.

CDC made the following important findings:

- 1 in 68 children in the United States have ASD. CDC documented an increasing prevalence of autism since 2000, when 1 in 150 children were estimated to have ASD.[43]
- ASD is about 4.5 times more common among boys (1 in 42) than among girls (1 in 189).[44]
- Black and Hispanic children are less likely to be identified with ASD than white children (1.2 times and 1.5 times). Those who are identified with ASD received comprehensive developmental exams later than white children.[45]
- Children born to older parents are more likely to have autism. First children of 2 older parents were 3 times more likely to develop autism than were third- or later-born offspring of mothers aged 20-34 years and fathers aged less than 40 years.[46]
- ASD commonly co-occurs with other psychological, genetic and developmental conditions. The co-occurrence of one or more non-ASD developmental diagnoses is 83%.[47]
- Almost half (about 44%) of children identified with ASD has average to above average intellectual ability.[48]

CDC prevalence estimates for ASD and information about the severity of the disorder in children with ASD are used by state and local health departments and social service agencies to plan for future demands and target children and communities most at need. Since 2000, CDC has captured data from medical and education records in multiple locations to monitor changes in the number of children diagnosed with ASD and to learn more about the characteristics of the children who are impacted.

[40] https://www.cdc.gov/mmwr/volumes/65/ss/ss6503a1.htm
[41] http://pediatrics.aappublications.org/content/119/Supplement_1/S114
[42] https://www.ncbi.nlm.nih.gov/pubmed/17690969
[43] https://www.cdc.gov/mmwr/volumes/65/ss/ss6503a1.htm
[44] https://www.cdc.gov/mmwr/volumes/65/ss/ss6503a1.htm
[45] https://www.cdc.gov/mmwr/volumes/65/ss/ss6503a1.htm
[46] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2638544/
[47] https://www.ncbi.nlm.nih.gov/pubmed/20431403
[48] https://www.cdc.gov/mmwr/volumes/65/ss/ss6503a1.htm

CDC also plays a leading role in uncovering the potential causes of autism through the largest autism epidemiologic research programs in the United States. CDC's autism research is unique because of the number of families enrolled in the study, the population-based nature of the study, and the inclusion of multiple sites across the country.

As children with ASD age into adolescence and adulthood, we have little data to help understand their challenges and needs. ASD captures a wide spectrum of developmental disability - from people who are unable to live independently to those who are navigating nuances of social interactions at the office. More knowledge is needed to guide efforts to best support adolescents and adults with autism and reduce unnecessary costs on the healthcare and educational systems.

In FY 2019, CDC will prioritize supporting the tracking and research that help us better understand autism, how children and families are affected, and how we can best help them. CDC will also contribute to better understanding of children with autism as they reach adolescence to inform critical periods in development and transition to adulthood.

Milestones for Early Child Development

Even though ASD can be identified in children before age 2, most children with ASD and other developmental conditions are not diagnosed until after age 4. Early screening and monitoring of developmental progress are important to help children get earlier access to services during their most critical developmental period. This helps reduce the need for more costly interventions over time. CDC aims to improve early identification of the 1 in 68 children with ASD and the 1 in 6 children with a developmental disability so children and their families can get the services and support they need as early as possible. CDC is well established as a leader in providing tools and resources to increase developmental monitoring and improve the early identification of autism and other developmental disabilities. CDC's developmental monitoring resources are used in homes and pediatrician offices, WIC clinics and Head Start programs, and on iPhones and Androids. CDC research has shown children are receiving comprehensive developmental evaluations earlier than before.[49] This indicates progress has been made in identifying children at younger ages.

CDC's Learn the Signs. Act Early. (LTSAE)[50] program promotes early identification through developmental monitoring to parents, early care and education providers, and healthcare providers. CDC offers free, easy-to-use resources to encourage the tracking of child development and acting early on concerns, including:

- Developmental milestone checklists[51] along with photos and videos to help explain milestones
- Innovative children's books that educate parents on milestones while they read with their child
- Free online continuing education training on identifying, diagnosing, and managing ASD[52] and on developmental monitoring in child care[53]

Learn the Signs. Act Early. is a prominent feature of far-reaching U.S. Department of Health and Human Services (HHS) early childhood initiatives such as Birth to 5: Watch Me Thrive[54] and Too Small to Fail. Additionally, Act Early Ambassadors[55] and Act Early State Systems grantees[56] work with early childhood programs at the state and local level to promote developmental monitoring of all young children.

[49] https://www.cdc.gov/mmwr/volumes/65/ss/ss6503a1.htm
[50] http://www.cdc.gov/ncbddd/actearly/index.html
[51] http://www.cdc.gov/ncbddd/actearly/milestones/index.html
[52] http://www.cdc.gov/ncbddd/actearly/act.html
[53] http://www.cdc.gov/ncbddd/watchmetraining/index.html
[54] http://www.acf.hhs.gov/programs/ecd/child-health-development/watch-me-thrive
[55] https://www.cdc.gov/ncbddd/actearly/ambassadors-list.html
[56] https://www.cdc.gov/ncbddd/actearly/parents/states.html

Finally, the LTSAE program has been successfully integrated into select state early child services systems, including childcare settings and WIC clinics. The LTSAE program has been shown to effectively identify children at potential risk for developmental delays and help those children obtain referrals for evaluations to address developmental concerns.

Early Hearing Detection and Intervention

CDC addresses another common disability that can lead to developmental delays if not identified early - hearing loss in children[57]. Each year, 12,000 infants are born deaf or hard of hearing.[58] Hearing loss can affect a child's ability to develop speech, language, and social skills. Early identification and intervention of hearing loss can significantly improve developmental outcomes for deaf and hard of hearing children.

CDC is solely responsible for collecting and analyzing Early Hearing Detection and Intervention (EHDI) data[59] from across the United States, and is currently funding 49 states and territories to modernize their EHDI information systems (EHDI-IS) - which are state-based surveillance systems that collect information on hearing screening, diagnostic, and intervention services.[60] CDC uses EHDI data to investigate potential risk factors for hearing loss and helps health departments, service providers, and early intervention programs estimate caseloads, plan for services, and determine needed resources. CDC experts assist all states and territories on the early identification of deaf and hard of hearing infants. Finally, CDC funds the development and use of systems and data tools, such as the EHDI 1-3-6 Guidelines[61] that help states and territories ensure deaf and hard of hearing children receive essential diagnostic and intervention services in a timely manner.

CDC works closely with NIH and HRSA to assist states with implementing and strengthening their EHDI programs. However, each agency works to address a specific need. NIH and HRSA depend on CDC's EHDI data to assess their progress and inform their future research and programmatic activities related to EHDI.

Because of CDC's efforts to help children with hearing loss reach their full potential:

- Over 97% of infants born in the United States are now screened for hearing loss or deafness.[62]
- The percentage of infants who received needed follow-up services to determine if they are deaf or hard of hearing has steadily increased from 36% in 2005 to 66% in 2014.[63]
- CDC has demonstrated that newborn hearing screening and intervention within the recommended time period results in children with hearing loss having the same language and communication skills as their peers without hearing loss.[64]
- CDC has shown that the newborn hearing screening program saves $200 million in education costs each year.[65]

[57] https://www.cdc.gov/ncbddd/hearingloss/index.html
[58] https://www.cdc.gov/ncbddd/hearingloss/documents/hearing-factsheet.pdf
[59] https://www.cdc.gov/ncbddd/hearingloss/data.html
[60] https://www.cdc.gov/ncbddd/hearingloss/ehdi-is-functional-standards.html
[61] Hearing professionals use the important 1-3-6 benchmarks - Before one month of age: Hearing Screening; before 3 months of age: Hearing Evaluation; and before 6 months of age: Early Intervention.
[62] https://www.cdc.gov/ncbddd/hearingloss/2014-data/screen_2014_web_b.pdf
[63] https://www.cdc.gov/ncbddd/hearingloss/documents/hearing-factsheet.pdf
[64] Yoshinaga-Itano C, Sedey AL, Wiggin M, et al. Early Hearing Detection and Vocabulary of Children With Hearing Loss. *Pediatrics.* 2017;140(2):e20162964
[65] Gross, SD. Education cost savings from early detection of hearing loss: New findings. Volta Voices 2007; 14(6):38-40

While newborn hearing screening is now part of routine newborn care, CDC is committed to ensuring that all deaf and hard of hearing infants receive critical and timely screening, diagnostic, and intervention services. In FY 2019, CDC will focus on strengthening the capacity of states and territories to:

- Identify infants who are deaf and hard of hearing, and
- Use data collection, tracking, and quality assurance components to close the gap in follow-up services for deaf and hard of hearing infants.

Attention-Deficit/Hyperactivity Disorder

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders of childhood that affects an estimated 1 in 9 children aged 4 to 17 years.[66] Early and effective treatment of ADHD is the key to children's success at home, in school, in the community, and as they transition into adulthood. With excess expenses related to ADHD costing Americans up to $72 billion per year, it is important for children diagnosed with ADHD to receive treatment consistent with these clinical best practices.[67]

CDC analyzes national and community data to identify the number of children living with ADHD, the type of treatment that these children receive, and outcomes for children with ADHD. CDC also identifies policies and practices related to ADHD treatments and develops tools and resources for families, health educators, medical professionals, and other decision-makers to help them make informed health care decisions. CDC works with national organizations, such as the Association of University Centers on Disabilities (AUCD) and the Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD), to improve diagnostic accuracy of ADHD, promote recommended effective treatment options, and identify factors that promote healthy development of children with ADHD.

In FY 2017, CDC published new science on ADHD – one released in the Journal of Pediatrics[68] that looked at the different types of treatment received by U.S. children, aged 4-17 years, diagnosed with ADHD. Experts recommend using both medicine and behavior therapy for children over 6 years of age and using behavior therapy as the first line of treatment for children under 6 years of age. CDC researchers found the most common treatment for ADHD is medicine, and the majority of children have not received any type of behavior therapy. This study is relevant for healthcare providers and public health professionals so that they can understand possible gaps in treatments that families may experience. In the second study,[69] CDC published the first nationally representative estimates of ADHD diagnosis and treatment in preschoolers. The study shows nearly a quarter of a million children aged 2 to 5 years in U.S. had an ADHD diagnosis in 2011 and 2012, an increase of more than 50% from 2007. Among these children, only about 50% received behavioral treatment for their ADHD.

CDC also leverages and directly supports the HRSA-funded and directed National Survey of Children's Health to provide national and state level estimates of key measures of child health and well-being, including ADHD.

In FY 2019, CDC will continue to encourage healthcare providers and families on recommended treatment options for children living with ADHD by educating and training health care providers on recommended

[66] Visser, S. N., Danielson, M. L., Bitsko, R. H., Holbrook, J. R., Kogan, M. D., Ghandour, R. M., … Blumberg, S. J. (2014). Trends in the Parent-report of Health Care Provider Diagnosed and Medicated ADHD: United States, 2003—2011. Journal of the American Academy of Child and Adolescent Psychiatry, 53(1), 34–46.e2. http://doi.org/10.1016/j.jaac.2013.09.001

[67] Jalpa A. Doshi et al., Economic Impact of Childhood and Adult Attention-Deficit/Hyperactivity Disorder in the United States, 51 J. AM. ACAD. CHILD & ADOLESCENT PSYCHIATRY 990, 1000 (2012).

[68] Danielson ML, Visser SN, Chronis-Tuscano A, DuPaul GJ. A national description of treatment among U.S. children and adolescents with ADHD. Journal of Pediatrics. Published online before print, November 10, 2017

[69] Danielson ML, Visser SN, Gleason MM, Peacock G, Claussen AH, Blumberg SJ. A National Profile of Attention-Deficit Hyperactivity Disorder Diagnosis and Treatment Among US Children Aged 2 to 5 Years. Journal of Developmental and Behavioral Pediatrics. 2017, 38(7), 455–464.

treatment options and how to access these options in rural and remote areas. CDC will also continue to study the treatment patterns of children and adolescents with ADHD and the policies that affect how ADHD treatments are authorized and reimbursed by health plans.

Blood Disorders

People with blood disorders are living longer than ever before, but with far too many costly and preventable medical complications. CDC addresses blood disorders such as hemophilia and venous thromboembolisms. While some of these conditions individually are rare, about 1 in 76 Americans have a blood disorder.

Blood disorders have serious, lifelong health consequences, and cost our healthcare system billions of dollars every year. Improvements in quality of care, prophylaxis, and risk identification can significantly and measurably decrease the physical and financial burden caused by preventable complications. There is enormous potential to reduce the disease burden and associated healthcare costs through application of best healthcare practices, informed by CDC's surveillance and patient data analysis. Working with partners in academia, national professional organizations, state and local health departments, and other federal agencies, CDC identifies:

- How often and in what settings blood disorders occur to better understand who is at risk
- Effective blood disorder prevention strategies
- Ways to reduce complications from blood disorders

CDC invests in activities that increase understanding of blood disorders and their complications, advance medical care and treatments to improve health, and reduce costs.

Hemophilia

CDC works closely with hospitals and clinics across the country to track and analyze patient data for people with inherited blood disorders like hemophilia. Hemophilia is an inherited life-long bleeding disorder that can cause damage to internal organs and chronic joint disease and pain. About 15-20% of people with hemophilia will develop an inhibitor, an antibody to the products used to treat or prevent bleeding.[70] Inhibitors make treatments less effective, increasing hospitalizations, compromising physical functioning and potentially causing a patient's treatment costs to exceed $1 million a year[71]. Discovering and treating inhibitors early helps improve outcomes and reduce costs.

CDC's Community Counts surveillance program[72] gathers individual and population-level data that helps physicians and scientists improve the lives of people with hemophilia.

Through data gathered by Community Counts, CDC has made the following important contributions:

- CDC has worked to increase the lifespan of individuals with hemophilia by 30 years through laboratory studies and drug therapy programs.
- CDC data has shown that a person with hemophilia who is treated at a federally supported specialized care center has a 40% decrease in the risk of death as compared to those treated at a non-specialized center.[73]

CDC developed national laboratory testing guidance[74] to detect a hemophilia patient's resistance to treatment. Just one patient with hemophilia who develops resistance to their treatment can cost the healthcare system $1 million or more annually.

Americans with hemophilia are more likely to be overweight, experience chronic joint pain, and organ failure. In FY 2019, CDC will work to develop a communication campaign to increase the number of people with hemophilia who are exercising safely and regularly, which can in turn increase lifespan and decrease

[70] http://www.cdc.gov/ncbddd/hemophilia/inhibitors.html
[71] https://www.ncbi.nlm.nih.gov/pubmed/22151000
[72] https://www.cdc.gov/ncbddd/hemophilia/communitycounts/about.html
[73] http://www.bloodjournal.org/content/96/2/437.full?sso-checked=true
[74] https://www.ncbi.nlm.nih.gov/pubmed/23546724

complications of obesity. CDC will also complete the enrollment of all federally-funded Hemophilia Treatment Centers into its Community Counts system, and use this data to inform best practices for doctors in these clinics.

Venous Thromboembolism

CDC works to prevent avoidable medical complications, such as venous thromboembolisms (VTE), which are blood clots in the veins. VTE affects as many as 900,000 American patients each year; one in 10 of these patients die from VTE, many without ever being diagnosed.[75] VTE costs our healthcare system an estimated $10 billion annually and many of these events are preventable.[76] CDC's new data[77] found current estimated incidence rates of VTE appear to be significantly higher than previously estimated including a marked increase among black populations. This discrepancy in incidence data indicates a higher national burden that should be both adequately measured and addressed.

Half of the VTE events that occur annually are healthcare associated. CDC is uniquely positioned to study a layered approach to reducing the number of VTEs occurring in hospitals today by partnering with organizations who encounter diverse populations and utilize varied resources. Learning more about care-based interventions and electronic medical record surveillance systems through these partnerships and funded projects, help create a comprehensive view of both the current best practices to prevent hospital-associated VTE and the trajectory of electronic surveillance that will dramatically increase provider awareness of VTE risk factors and reduce complications for these patients.

CDC has made the following important contributions towards decreasing the impact of VTE:

- CDC launched a heath care-associated VTE challenge to hospitals and health systems, where approximately 50% of VTE are acquired. These hospitals implemented innovative, effective and sustainable VTE prevention methods, and are promoting their models nationwide.
- CDC funded the national campaign Stop the Clot, Spread the Word[78] to promote the awareness of the signs, symptoms, and risk factors for VTE which reached more than 90 million people during 2016.

In FY 2019, CDC will focus on building an inventory of hospital associated-VTE prevention best practices and work closely with partner institutions to improve and tailor pilot VTE surveillance mechanisms at healthcare institutions. CDC also anticipates the deployment of a communication campaign targeted at cancer patients and pregnant women, who are at higher risk for VTE.

[75] http://www.sciencedirect.com/science/article/pii/S0749379709009465?via%3Dihub
[76] http://www.sciencedirect.com/science/article/pii/S0749379709009465?via%3Dihub
[77] https://www.cdc.gov/ncbddd/dvt/features/keyfinding-bloodclots-vte.html
[78] https://www.stoptheclot.org/spreadtheword/

Disabilities and Health

Disabilities may include difficulty with movement, hearing, seeing, communicating, concentrating, remembering, or making decisions. People with disabilities need public health programs and health care services for the same reasons anyone does - to be well, active, and part of the community. CDC is dedicated to ensuring that people with disabilities can participate in every aspect of life to the best of their abilities and desires.

CDC is a leader in the development, use, and improvement of public health surveillance systems that identify critical information about the health of people with disabilities. CDC's surveillance and analyses contribute to increased understanding of prevalence, health care utilization and costs, disparities in access to health care services, and treatment options associated with disease progression and survival. CDC has expanded the knowledge base related to disability and health across the lifespan and, as described below, many federal agencies and research entities rely on CDC's surveillance systems and expertise in this area.

CDC also educates health care providers and families on the best treatment and care options to manage disabilities and related conditions across the lifespan. To support these education efforts, CDC partners with health care providers and national organizations to develop clinical guidance, track medication and treatment use and effectiveness, and reduce preventable medical complications.

As a direct result of CDC's work in disabilities and health, people with disabilities are living longer lives.

Muscular Dystrophy

Muscular dystrophies[79] are a group of diseases caused by defects in a person's genes. Over time, muscle weakness decreases mobility and makes the tasks of daily living difficult. There are many muscular dystrophies and CDC studies eight types,[80] including Duchenne muscular dystrophy. Duchenne muscular dystrophy predominately affects males. The estimated prevalence of Duchenne and Becker muscular dystrophy is 1 in every 7,250 males aged 5 – 24 years.[81]

Muscular dystrophy is rare, and there is not a lot of data on how many people are affected by this condition. CDC is addressing this gap in understanding by funding and managing the only surveillance system collecting health information on people living with muscular dystrophy in the United States. This surveillance system is called the Muscular Dystrophy Surveillance Tracking and Research Network (MD STARnet).[82] Using data from medical records and administrative sources, this surveillance system provides vital information on prevalence, quality of life, health care use and costs, disparities in access to health care services, and treatment options associated with disease progression and survival.

Using MD STARnet data, CDC has made the following important findings and accomplishments:

- Steroid medication treatment helps children with muscular dystrophy delay assistive devices, such as wheel chairs, by enabling them to walk on their own for longer period than children that did not receive steroid treatment.
- A substantial gap exists between parent concern and the age at which a diagnosis of a muscular dystrophy is made, which potentially delays treatment for 2 1/2 years.

[79] https://www.cdc.gov/ncbddd/musculardystrophy/index.html
[80] https://www.cdc.gov/ncbddd/musculardystrophy/facts.html
[81] (Romitti PA, Zhu Y, Puzhankara S, James KA, Nabukera SK, Zamba GK, Ciafaloni E, Cunniff C, Druschel CM, Mathews KD, Matthews DJ, Meaney FJ, Andrews JG, Conway KM, Fox DJ, Street N, Adams MM, Bolen J; MD STARnet. Prevalence of Duchenne and Becker muscular dystrophies in the United States. Pediatrics. 2015 Mar;135(3):513-21.)
[82] http://www.cdc.gov/ncbddd/musculardystrophy/research.html

- Increasing muscular dystrophy surveillance from 2 types of muscular dystrophies (Duchenne, Becker) to 8 types enabled CDC to address gaps in knowledge on prevalence, mortality, survival, and care received and disparities in care of these populations.
- CDC created a tool for parents called Physical Developmental Delays: What to Look For.[83] This tool reduces the time it takes for children with physical developmental delays to receive a diagnosis and intervention services. This tool reinforces the ideas that parents know their child best and should trust their instincts.

CDC is committed to improving the standard of care for people living with muscular dystrophy. CDC develops and disseminates comprehensive care considerations for health care providers to use with their patients living with Duchenne muscular dystrophy and four other types of muscular dystrophy. These care considerations have been well-received and widely disseminated, including internationally, by advocacy groups and the Duchenne muscular dystrophy community. These care considerations have resulted in earlier diagnosis of Duchenne muscular dystrophy, higher quality health care services, and improved quality of life. Publication of the updated care considerations is expected in FY 2018.

CDC joins forces with other federal agencies (NIH, FDA, and HRSA) to maximize the health for people living with muscular dystrophy nationwide through membership on the Muscular Dystrophy Coordinating Committee and a Secretary's Advisory Committee. These memberships allow CDC to keep abreast of upcoming research from federal partners while sharing CDC's expertise. CDC's focus is on living with muscular dystrophy, while most other agencies are more focused on finding a cure.

In FY 2019, CDC will continue:

- Conducting population-based surveillance and longitudinal follow-up for muscular dystrophies and neuromuscular disorder(s) to answer critical public health and clinical research questions.
- Using MD STARnet to further understand how muscular dystrophies affect patients and which treatments work best so that every person with a muscular dystrophy can receive excellent, standardized care.

Spina Bifida

Approximately 1,500 babies born in the United States each year are affected by spina bifida[84], a complex, disabling condition that affects the spine and is usually apparent at birth. Spina bifida has a tremendous impact on individuals and families, including high healthcare costs associated with frequent surgeries and hospitalizations. Health care services are often difficult to access as well. The lifetime direct costs to treat just one child with spina bifida are estimated at $790,000.[85]

In 2008, CDC established the only surveillance system in the United States gathering critical information on patients living with spina bifida, including prevalence, risk factors, health outcomes, and treatment options. CDC's spina bifida program helps researchers, health care providers, and families affected by spina bifida understand health outcomes and the quality and effectiveness of existing health care services for spina bifida patients. CDC sends annual data reports to U.S. spina bifida clinics on the current health status of and the best treatment and care management options for this population. CDC's spina bifida surveillance system is viewed as a model for other public health surveillance systems monitoring rare diseases.

CDC's efforts have led to enormous successes for Americans living with spina bifida, including:

[83] https://www.cdc.gov/ncbddd/musculardystrophy/features/tool-parents-learn-physical-development-delays.html
[84] http://www.cdc.gov/ncbddd/spinabifida/index.html
[85] http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6401a2.htm

- CDC and its spina bifida clinical partners developed a urologic protocol that establishes a sequence of care activities and medical tests aimed at preserving normal kidney function as newborns with spina bifida grow. This protocol minimizes the severity of urological issues, preserve normal renal function, and ultimately reduce the occurrence of costly End Stage Renal Disease.

- CDC launched a training module about the prevention of skin breakdowns, a common condition among spina bifida patients. This module was distributed to clinics participating in CDC's spina bifida surveillance system. These clinics are helping CDC evaluate the impacts of this module on the prevention of skin breakdowns.

CDC and the Spina Bifida Association also collaborate with clinics and providers to share resources and to more effectively connect patients and their families to specialists and services that may not be available to them in their area.

In FY 2019, CDC will continue to:

- Improve our understanding of risks factors for spina bifida and optimize prevention efforts.
- Work with partners to understand the changes in treatment, unique needs, and health outcomes adolescents with spina bifida face as they transition into adulthood.
- Educate physicians about the needs and treatment options for adults living with spina bifida and other chronic congenital diseases.
- Use CDC's spina bifida surveillance system to study treatments and compare outcomes for patients over time in order to identify the best care for people living with spina bifida.

Congenital Heart Defects

Congenital heart defects (CHDs)[86] affect the structure of the heart and the way the heart functions. Collectively, CHDs are the most common type of birth defect. Thanks to advancements in medical care and treatment, infants with CHDs are living longer and healthier lives. Most are now living into adulthood and face new questions like medical care during pregnancy and availability of health care providers to treat adults with a congenital condition. CDC leads efforts to answer these questions about survival, healthcare utilization, and longer term outcomes of those affected by CHDs.

In FY 2019, CDC will focus on coordinating the multi-site CHD surveillance with a broad focus on surveillance among children, adolescents, and adults. The surveillance effort will improve our understanding of the epidemiology of CHDs across the life span, age-specific prevalence, and factors associated with dropping out of appropriate specialty care which could lead to disability, death, or increased medical costs. In additional, CDC will continue to explore improved screening for critical congenital heart defects can further decrease infant deaths.

Disability and Health State Programs

Approximately 57 million Americans live with a disability.[87] The annual health care costs associated with disabilities are nearly $400 billion – over 25% of all health care expenditures for adults residing in the United

[86] http://www.cdc.gov/ncbddd/heartdefects/index.html

[87] Brault, Matthew W., "Americans With Disabilities: 2010," Current Population Reports, P70-131, U.S. Census Bureau, Washington, DC, 2012. Available at http://www.nasuad.org/sites/nasuad/files/hcbs/files/218/10869/Americans_with_disabilities_2010.pdf; access January 7, 2015. Based on Survey of Income and Program Participation, U.S. Census Bureau, 2010.

States.[88] CDC science shows that as a group, people with disabilities are more likely to be physically inactive, be overweight, have heart disease or diabetes, and yet are less likely to access needed preventive care programs and services. CDC is committed to ensuring that people with disabilities can participate in every aspect of life to the best of their abilities and desires.

CDC's Disability and Health Data System[89] is an interactive data system that provides state-level, regional, and national data on the health of adults with disabilities. States and communities rely on this information to understand the health status of their disabled population and to tailor their health protection programs for this vulnerable, high need population. Information states and communities can find on CDC's Disability and Health Data System include disability status, demographic characteristics, and more than 30 measures of health (e.g., smoking, physical activity, obesity, hypertension, heart disease, and diabetes).

In FY 2017, CDC funded 19 state programs to improve health outcomes among people with mobility limitations and/or cognitive disabilities by improving the inclusiveness and accessibility of state public health programs. Continuing this work, in a recent report, CDC scientists summarized how public health recommendations from the Guide to Community Preventive Services can be adapted to better benefit people with disabilities.[90]

In FY 2019, CDC will continue to make its experts available to assist to federal, state, local, and nonprofit partners improve their programs so they are more inclusive of people with disabilities. CDC will also continue to collaborate with its partners to reduce health disparities of people with disabilities by including them in public health surveys, public health promotion and disease prevention programs, and accessible health care services.

[88] Anderson, W. L., Armour, B. S., Finkelstein, E. A., & Wiener, J. M. (2010). Estimates of State-Level Health-Care Expenditures Associated with Disability. Public Health Reports, 125(1), 44–51.
[89] https://www.cdc.gov/ncbddd/disabilityandhealth/dhds.html
[90] https://www.cdc.gov/ncbddd/disabilityandhealth/features/preventive-services-and-disability-inclusion.html

State table: Early Hearing Detection and Intervention[1]

	FY 2017 Actual	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$149,174	$149,174	$149,174	$0
Alaska	$150,000	$150,000	$150,000	$0
Arizona	$150,000	$150,000	$150,000	$0
Arkansas	$150,000	$150,000	$150,000	$0
California	-	-	-	-
Colorado	$149,879	$149,879	$149,879	$0
Connecticut	$150,000	$150,000	$150,000	$0
Delaware	$145,870	$145,870	$145,870	$0
Florida	$150,000	$150,000	$150,000	$0
Georgia	$250,000	$250,000	$250,000	$0
Hawaii	-	-	-	-
Idaho	$150,000	$150,000	$150,000	$0
Illinois	$150,000	$150,000	$150,000	$0
Indiana	$149,096	$149,096	$149,096	$0
Iowa	$150,000	$150,000	$150,000	$0
Kansas	$150,000	$150,000	$150,000	$0
Kentucky	$145,821	$145,821	$145,821	$0
Louisiana	$241,465	$241,465	$241,465	$0
Maine	$149,999	$149,999	$149,999	$0
Maryland	-	-	-	-
Massachusetts	$250,000	$250,000	$250,000	$0
Michigan	$150,000	$150,000	$150,000	$0
Minnesota	$250,000	$250,000	$250,000	$0
Mississippi	$150,000	$150,000	$150,000	$0
Missouri	$102,159	$102,159	$102,159	$0
Montana	-	-	-	-
Nebraska	$150,000	$150,000	$150,000	$0
Nevada	$149,933	$149,933	$149,933	$0
New Hampshire	$150,000	$150,000	$150,000	$0
New Jersey	$248,837	$248,837	$248,837	$0
New Mexico	$150,000	$150,000	$150,000	$0
New York	$150,000	$150,000	$150,000	$0
North Carolina	$200,000	$200,000	$200,000	$0
North Dakota	$150,000	$150,000	$150,000	$0
Ohio	$150,000	$150,000	$150,000	$0
Oklahoma	$150,000	$150,000	$150,000	$0
Oregon	$250,000	$250,000	$250,000	$0
Pennsylvania	$150,000	$150,000	$150,000	$0
Rhode Island	$150,000	$150,000	$150,000	$0
South Carolina	$73,256	$73,256	$73,256	$0
South Dakota	$148,459	$148,459	$148,459	$0
Tennessee	-	-	-	-
Texas	$150,000	$150,000	$150,000	$0
Utah	$150,000	$150,000	$150,000	$0
Vermont	$150,000	$150,000	$150,000	$0
Virginia	$122,290	$122,290	$122,290	$0
Washington	$250,000	$250,000	$250,000	$0
Washington, D.C.	-	-	-	-
West Virginia	-	-	-	-
Wisconsin	$250,000	$250,000	$250,000	$0

	FY 2017 Actual	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Wyoming	$148,225	$148,225	$148,225	$0
Territories				
America Samoa	$141,925	$141,925	$141,925	$0
Guam	$150,000	$150,000	$150,000	$0
Marshall Islands	$124,548	$124,548	$124,548	$0
Micronesia	-	-	-	-
Northern Marianas	$65,040	$65,040	$65,040	$0
Puerto Rico	$147,373	$147,373	$147,373	$0
Palau	-	-	-	-
Virgin Islands	-	-	-	-
Subtotal, States	**$7,27,463**	**$7,27,463**	**$7,27,463**	**$0**
Subtotal, Territories	**$628,886**	**$628,886**	**$628,886**	**$0**
Total	**$7,903,349**	**$7,903,349**	**$7,903,349**	**$0**

[1]This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit http://wwwn.cdc.gov/FundingProfiles/FundingProfilesRIA/.

State Table: Disability and Health Grants [1,3]

	FY 2017 Actual	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$300,000	$300,000	TBD	TBD
Alaska	-	-	-	-
Arizona	-	-	-	-
Arkansas	$399,950	$399,950	TBD	TBD
California	-	-	-	-
Colorado	-	-	-	-
Connecticut	-	-	-	-
Delaware	-	-	-	-
Florida	$300,000	$300,000	TBD	TBD
Georgia	-	-	-	-
Hawaii	-	-	-	-
Idaho	-	-	-	-
Illinois	-	-	-	-
Indiana	-	-	-	-
Iowa	$300,000	$300,000	TBD	TBD
Kansas	$299,995	$299,995	TBD	TBD
Kentucky	$150,000	$150,000	TBD	TBD
Louisiana	-	-	-	-
Maine	-	-	-	-
Maryland	$150,000	$150,000	TBD	TBD
Massachusetts	$349,789	$349,789	TBD	TBD
Michigan	$300,000	$300,000	TBD	TBD
Minnesota	$300,000	$300,000	TBD	TBD
Mississippi	-	-	-	-
Missouri	$150,000	$150,000	TBD	TBD
Montana	$300,000	$300,000	TBD	TBD
Nebraska	-	-	-	-
Nevada	-	-	-	-
New Hampshire	$400,000	$400,000	TBD	TBD
New Jersey	-	-	-	-
New Mexico	-	-	-	-
New York	$350,000	$350,000	TBD	TBD
North Carolina	-	-	-	-
North Dakota	-	-	-	-
Ohio	$300,000	$300,000	TBD	TBD
Oklahoma	-	-	-	-
Oregon	$400,000	$400,000	TBD	TBD
Pennsylvania	-	-	-	-
Rhode Island	-	-	-	-
South Carolina	$350,000	$350,000	TBD	TBD
South Dakota	-	-	-	-
Tennessee	-	-	-	-
Texas	-	-	-	-
Utah	$150,000	$150,000	TBD	TBD
Vermont	$150,000	$150,000	TBD	TBD
Virginia	-	-	-	-
Washington	-	-	-	-
West Virginia	-	-	-	-
Wisconsin	-	-	-	-
Wyoming	-	-	-	-

	FY 2017 Actual	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Territories				
America Samoa	-	-	-	-
Guam	-	-	-	-
Marshall Islands	-	-	-	-
Micronesia	-	-	-	-
Northern Marianas	-	-	-	-
Puerto Rico	-	-	-	-
Palau	-	-	-	-
Virgin Islands	-	-	-	-
Subtotal, States	**$5,399,734**	**$5,399,734**	**TBD**	**TBD**
Subtotal, Territories	**$0**	**$0**	**TBD**	**TBD**
Total	**$5,399,734**	**$5,399,734**	**TBD**	**TBD**

[1]This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit http://wwwn.cdc.gov/FundingProfiles/FundingProfilesRIA/.

[3]http://www.cdc.gov/ncbddd/disabilityandhealth/programs.html

PUBLIC HEALTH SCIENTIFIC SERVICES

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$496.226	$494.019	$332.180	-$161.839
PHS Evaluation Funds	$0.000	$0.000	$135.820	+$135.820
Total Request	**$496.226**	**$494.019**	**$468.000**	**-$26.019**
FTEs	1,475	1,360	1,300	-60
Health Statistics	$160.021	$159.308	$155.000	-$4.308
PHS Evaluation Funds (non-add)	*$0.000*	*$0.000*	*$135.820*	*+$135.820*
Surveillance, Epidemiology, and Public Health Informatics[1]	$286.327	$285.051	$268.000	-$17.051
Lab Safety and Quality (non-add)	*$7.981*	*$7.946*	*$8.000*	*+$0.054*
Public Health Workforce and Career Development	$49.878	$49.660	$45.000	-$4.660

[1] FY 2017 Operating Level and FY 2018 President's Budget Surveillance, Epidemiology, and Public Health Informatics amounts are comparably adjusted to reflect $8 million movement to Lab Safety and Quality from Emerging and Zoonotic Infectious Diseases account.

Enabling Legislation Citation: PHSA Title II §§ 241, Title III 301, 304, 306*, 307, 308, 310, 317, 317G, 318, 319, 319A, 353, 391, 399V, 778*, 1102, Title XVII*, 2315, 2341, 2521*; P.L. 107-347, Title V (44 U.S.C. 3501 note); Intelligence Reform and Terrorism Prevention Act of 2004 § 7211* (P.L. 108-458); Food, Conservation, And Energy Act of 2008 § 4403 (7 U.S.C. 5311a); P.L. 101-445 § 5341 (7 U.S.C. 5341)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Competitive Grants/Cooperative Agreements, Contracts

CDC's Public Health Scientific Services (PHSS) leads, promotes, and facilitates science standards and policies to reduce the burden of diseases in the United States and globally by:

- Providing leadership and training for a competent, sustainable, and empowered public health workforce
- Providing the needed infrastructure to modernize public health surveillance systems and overseeing CDC's Surveillance Strategy[91]
- Improving access to information needed by public health professionals who monitor and respond to disease outbreaks and other threats

CDC's FY 2019 request of **$468,000,000** for Public Health Scientific Services (PHSS), including $135,820,000 in PHS Evaluation Transfer, is $26,019,177 below the FY 2018 Annualized CR level. This level includes the reductions proposed in the FY 2018 President's Budget request. It also includes a programmatic realignment of $8,000,000 for Lab Safety and Quality moved from the Emerging and Zoonotic Infectious Diseases account. At this funding level, CDC will continue to support the most effective public health workforce training and workforce development programs. Core health statistics activities will also continue at this level.

[91] https://www.cdc.gov/ophss/docs/cdc-surveillance-strategy-final.pdf

PUBLIC HEALTH SCIENTIFIC SERVICES

BY THE NUMBERS…

- Public Health Scientific Services funding provides surge capacity during public health emergencies, such as the Ebola and Zika virus responses, the opioid epidemic and natural disasters, including recent hurricanes.
- 100% of the American population is covered by the National Notifiable Disease Surveillance Systems infectious disease surveillance, allowing for the identification of the occurrence of over 120 diseases and conditions providing early detection and defense against public health threats.[1,2]
- CDC's National Center for Health Statistics collaborated with jurisdictions to identify specific drug categories in 85 percent of drug overdose deaths, which provided critical information for focused program and policy development to help combat the opioid epidemic.
- Ensured that the 260,000 U.S. clinical laboratories had access to training, guidance, and standards to conduct 13 billion tests per year—about 40 tests per year for every person living in the United States.
- Each year, CDC laboratory safety officials conduct safety inspections of 1,943 laboratory spaces on four different CDC campuses.
- CDC has developed 20 new laboratory safety-training courses for CDC staff and has had more than 5,000 course enrollments.
- CDC's Laboratory Safety Review Board provided rigorous scientific reviews of 108 protocols for the transfer of biological materials out of high-containment laboratories, to ensure the safety and verified inactivation of dangerous pathogens.
- CDC supported 24 EIS officers and Laboratory Leadership Service (LLS) fellows in 3 states and 2 U.S. territories during CDC's Zika virus outbreak response. An additional 90 Public Health Associates, assigned by CDC's Public Health Associate Program (PHAP), provided crucial response surge capacity in U.S. mainland and Puerto Rico communities.
- MMWR is a critical resource during CDC's emergency responses. During the response to Zika virus, 6766 reports were published, 50 of which were Early Releases published within 48 hours.[3]

References:

[1] Centers for Disease Control and Prevention, National Notifiable Disease Surveillance System (NNDSS). Available at https://wwwn.cdc.gov/nndss/conditions/notifiable/2018/

[2] Centers for Disease Control and Prevention, 2018 NNDSS Event Code List. Available at https://wwwn.cdc.gov/nndss/document/National_Notifiable_Diseases_Surveillance_System_Event_Code_List_2018_v1.xlsx

[3] Centers for Disease Control and Prevention (2017). Weekly. MMWR Zika Reports. Morbidity and Mortality Weekly. Available at https://www.cdc.gov/mmwr/zika_reports.html

Public Health Scientific Services Funding History	
Fiscal Year	Dollars (in millions)
2015	$481.061
2016	$491.022
2017 Final	$496.226
2018 Annualized CR	$494.019
2019 President's Budget (BA)	$332.180
2019 President's Budget (PHS Eval)	$135.820

Health Statistics Budget Request

Under the coordination of the Office of Management and Budget (OMB) by statute, 13 Federal statistical agencies collect, compile, and disseminate official federal statistics. CDC's National Center for Health Statistics (NCHS) serves as the principal statistical agency designated by OMB to produce official health statistics for the nation. Federal health statistics provide critical information and evidence to shape policies, monitor programs, track progress, and measure change. CDC's health statistics data provide information to support a robust portfolio of evidence informing a wide variety of program decisions in CDC, HHS, and in other federal agencies.

Budget Request

CDC's FY 2019 request of **$155,000,000** for health statistics, including $135,820,000 in PHS Evaluation Transfer, is $4,307,744 below the FY 2018 Annualized CR level. This level carries forward the proposed reductions from the FY 2018 President's Budget request.

The ability of governments, businesses, and the general public to make informed choices about budgets, employment, investments, taxes, and a host of other important matters depends critically on the ready and equitable availability of relevant, accurate, timely, and objective statistics. Within HHS, CDC alone houses the federal statistical agency designated to produce official health statistics. One of only 13 agencies so designated, CDC's National Center for Health Statistics (NCHS), along with the Census Bureau, the Bureau of Justice Statistics, and other agencies, make up the Federal Statistical System. The data produced by this System forms a robust evidence-base to support both public and private decision-making.

As the nation's health statistics agency, numerous federal partners work in collaboration to provide the data infrastructure to maximize the efficient use of taxpayer dollars and reduce duplication support the collection of information. These investments have resulted in an integrated data strategy that provides broader content and consistency.

At the FY 2019 requested level, CDC will:

- Continue focusing on providing quality information for evidence based policymaking by maintaining existing health data systems at current functionality, targeting investments to track progress in major health objectives for the nation.
- Maintain the core data systems used by CDC and HHS to monitor changes in the healthcare system and limit content to the most critical issues of public health importance.
- Target efforts to expand access to public use files and restricted microdata to the extent possible.
- Return survey sample size to baseline, the lowest sample size which permits the production of estimates on key health indicators at the national level.
- Safeguard investments and minimize duplication by increasing coordination and integration of data collection activities across federal agencies.

Major Data Collection Activities

Data Collection Systems	Method of Data Collection
National Vital Statistics System	Obtains information on the 4 million births and 2.5 million death events in the US each year to monitor natality and mortality.
National Health Interview Survey	Flagship survey for HHS conducting in person household interviews on health status and conditions, disability, access to and use of health services, health insurance coverage, immunizations, risk factors, and health-related behaviors.
National Health and Nutrition Examination Survey	The only federal health survey that assesses the physical health and nutritional status of a nationally representative sample of adults and children conducting household interviews, physical examinations and laboratory tests in mobile examination centers.
National Health Care Surveys	Collects information from health care providers about their organizational structure, services rendered, and patients served, including claims and clinical data from electronic health records.

Health Statistics: CDC and HHS rely on relevant and objective health statistics to measure, monitor, and track performance and progress, but the information is used by other federal agencies as well.

- The Department of Homeland Security uses the average weight of Americans reported by NHANES for public safety purposes related to passenger weight and vessel stability.
- The Federal Aviation Administration and the Coast Guard used NHANES as the authoritative source for average weight in the U.S. for carrying capacity in multiple modes of transportation.
- The Office of the Chief Actuary (OCA) of the Social Security Administration applies health statistics to project the solvency of programs such as Social Security.
- At the request of Congress, the National Institutes of Health (NIH) implemented a process to provide better consistency and transparency in the reporting of its funded research. Using CDC's health statistics data alongside the budgeting categories, NIH is able to provide the public and policymakers with information about its research portfolio and its relationship to public health needs.

National Vital Statistics System

The National Vital Statistics System[92] (NVSS) provides key information on the 6.5 million births and deaths in the United States each year, and is the oldest, most successful example of intergovernmental data sharing in public health. This statistical system produces information on natality, infant mortality, life expectancy, mortality, and the leading causes of death. The NVSS is the result of a successful long-standing collaboration with vital registration jurisdictions that has improved the quality and utility of vital statistics data.

National Health Interview Survey

The National Health Interview Survey[93] (NHIS) has been the nation's principal health survey for almost 60 years and is the flagship survey for the Department. Data collected through personal household interviews in the NHIS

[92]http://www.cdc.gov/nchs/nvss.htm
[93]http://www.cdc.gov/nchs/nhis.htm

is instrumental in tracking health status, risk factors, health conditions, and access to care. NHIS is an invaluable source of information on the health of the U.S. population.

The NHIS serves as a highly efficient platform for the collection of data within HHS and for other federal agencies. The Medical Expenditure Panel Survey and other surveys rely on this infrastructure for minimizing duplication and maximizing resources. CDC and HHS surveys use the NHIS as a critical benchmark for comparison of programs using state level data; states like California benchmark their health surveys to the NHIS. Health surveys in the private sector rely on the NHIS because the survey provides the official federal estimates for health policy and health research.

National Health and Nutrition Examination Survey

The National Health and Nutrition Examination Survey[94] is the only federal survey combining household interviews with physical examinations and laboratory tests. The survey collects nationally representative data on the prevalence of both diagnosed and undiagnosed conditions in the population. Conditions include diabetes, hypertension, and high cholesterol. NHANES provided evidence of the rise in obesity in the United States for both adults and children, informing program planning and prevention efforts across HHS. NHANES also provides information for national standards for measurements of height, weight, and blood pressure.

CDC and other federal agencies, including NIH and USDA, rely heavily on NHANES to provide measurements for targeting resources and planning and evaluating programs. NHANES data have also been instrumental in providing a complete picture of opioid use among population subgroups—groups for whom we often do not have sufficient information for developing program or policy.

National Health Care Surveys

The National Health Care Surveys[95] are a family of nationally representative provider-based surveys. The surveys cover a broad spectrum of health care settings to answer questions about the use of health care services and the delivery of care. Healthcare facilities, inpatient hospital units, and physician offices provide information on their practices, the delivery of services, and individual patient encounters. The National Hospital Care Survey[96] (NHCS) obtains information on emergency department (ED) visits, including critical information on drug-related ED visits.

Data Access and Analysis: To maximize efficiencies and improve the utility of the data, the Research Data Center (RDC) program has successfully participated with other HHS Operating Divisions to consolidate access to information while reducing burden to the government and data users. Additional partnerships were established to expand access to health data, resulting in decreased costs and increased opportunities. Reduced funding would reduce the operations of the RDC for federal research and policy uses.

Strengthening the Use of Evidence and Evaluation: The principal statistical agencies have a long history of sharing research findings and products with other agencies, and within HHS. Data from the official health statistics agency has become the linchpin for models of access to care. Data includes estimating the impact of changes in national policy on various segments of the U.S. population. Measurement and data collection provide information and evidence needed for making sound health policy. This information enhances monitoring the performance of programs that expend taxpayer dollars.

[94]http://www.cdc.gov/nchs/nhanes.htm
[95]http://www.cdc.gov/nchs/dhcs.htm
[96]http://www.cdc.gov/nchs/nhcs.htm

Surveillance, Epidemiology, and Public Health Informatics Budget Request

CDC's ability to provide comprehensive, timely, and high quality public health surveillance data and best practice information about what works to save lives is at the crux of every major public health achievement, from smallpox eradication to reductions in smoking. Increased investments in innovative disease surveillance, enhanced workforce capacity, and evidence-based practice are vital to building the strong, sustainable public health system needed to address the nation's urgent and emerging public health challenges.

CDC has a unique role in disease surveillance through a collaboration with all levels of public health – local, tribal, state, territorial, federal, and international – to share notifiable disease-related health information. In FY 2017, CDC made considerable progress towards the four initiatives outlined in the 2014 CDC Surveillance Strategy. In fall of 2017, CDC moved to the next phase of improvements by bringing together public-private partners that connect the healthcare system, electronic health records, and public health to enrich program and data integration; provide better connectivity between public health and healthcare; and improve efficiencies through shared information technology services.

Budget Request

CDC's FY 2019 request of **$268,000,000** for Surveillance, Epidemiology, and Public Health Informatics is $17,050,983 below the FY 2018 Annualized CR level. This request includes a programmatic realignment of **$8,000,000** for Laboratory Safety and Quality activities, previously allocated to the Emerging and Zoonotic Infectious Diseases account. The FY 2019 request carries forward the proposed reduction in All Other Surveillance, Epidemiology, and Informatics from the FY 2018 President's Budget request.

At the requested level, CDC will:

- Support core public health surveillance activities.
- Provide limited surge capacity during public health emergencies. Surge capacity allows CDC to gather rapidly surveillance data to monitor disease trends, identify emerging threats, and share new scientific information in response to emerging public health threats like Zika. Also, CDC is able to support the development and implementation of new laboratory testing capabilities to effectively combat infectious disease threats; and train clinical and public health laboratory professionals who serve as our first line of defense during disease outbreaks.

Surveillance

CDC's scientific services include a suite of surveillance and information systems, which serve as the foundation for the collection and use of a variety of public health indicators. These systems support infectious disease, syndromic, and population health surveillance and data transmission. This information allows local, state, and federal health agencies to track, monitor, and share information in support of infectious and non-infectious disease incidents and outbreaks. Agencies characterize unusual health events or activity to determine if further investigation or response is required, and understand risk behaviors and the use of preventive health services.

CDC works in partnership with state and territorial health departments through cooperative agreements to administer the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is the world's largest continuously conducted telephone health survey, through both landline and cell phones. The BRFSS is the primary source of data for local entities and states on the health-related behaviors of adults.

Behavioral Risk Factor Surveillance System (BRFSS) Grants[1,2]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	57	57	57
- New Awards	0	0	0
- Continuing Awards	57	57	57
Average Award	$0.236	$0.236	$0.236
Range of Awards	$0.020 - $0.313	$0.020 - $0.313	$0.020-$0.313
Total Awards	$13.465	$13.465	$13.465

[1]Table includes core funding from the Surveillance, Epidemiology, and Public Health Informatics budget activity and other CDC programs.

[2]These funds are not awarded by formula.

State and local efforts to monitor, control, and prevent the occurrence and spread of infections and noninfectious diseases are dependent on timely, high-quality data obtained from disease surveillance, a cornerstone of public health practice. The National Notifiable Diseases Surveillance System (NNDSS) is a CDC collaboration with 57 state, local and territorial public health jurisdictions to receive infectious disease data collected by 3,000 health departments. As a result, approximately 120 diseases and conditions are under continuous nationwide surveillance. With the evolution of technology and data exchange standards, CDC is strengthening and modernizing the infrastructure supporting NNDSS, allowing for more effective data-sharing and collaboration. As part of the CDC Surveillance Strategy, the NNDSS Modernization Initiative (NMI) is enhancing the system's ability to provide more comprehensive, timely, and higher quality data to CDC programs. This effort has significantly improved CDC's ability to track disease occurrence, identify potential outbreaks, recognize emerging trends, and monitor the impact of public health interventions.

The Health Level 7 (HL7) case notification message format is the foundational tool in support of modernized data standardization in reporting disease data to CDC. HL7 provides standards for the exchange, integration, sharing, and retrieval of electronic health information and is widely used in healthcare. With this framework, CDC standardizes the reporting of disease data to programs. This reduces the reporting burden on state partners, increases the quality and timeliness of the data received, and leads to better disease detection and outbreak management. Currently, 28 of the 57 reporting jurisdictions are at various stages of bringing new HL7 case notification Message Mapping Guides (MMG) online; 16 of those jurisdictions have implemented at least one of the new HL7 messages, and eight of these 16 have implemented more than one. These early numbers reflect the technical assistance CDC provides to states to help test, implement, and use the new MMGs to submit notifiable disease health data to CDC. Investment in this area has helped CDC support state efforts to move to a more efficient, modernized, and less burdensome reporting process, strengthening CDC's overall common defense against public health threats.

National Notifiable Diseases Surveillance System (NNDSS) Grants1

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	63	63	63
- New Awards	0	0	0
- Continuing Awards	63	63	63
Average Award	$0.150	$0.162	$0.162
Range of Awards	$0.000–$0.291	$0.006–$0.331	$0.006-$0.331
Total Awards	$9.723	$10.247	$10.247

[1]These funds are not awarded by formula.

Epidemiology

CDC supports scientifically sound decision making by providing epidemiological resources, evidence-based recommendations, scientific literature, tools, and other resources for preventing and solving public health problems. Health departments, non-profit hospitals, clinicians, and others engaged in protecting the health of their communities use these resources to inform and enhance their work at state and local levels. Principal programs and tools include:

- CDC's Data Hub provides access to some of the largest health-related datasets in the nation. This consolidation increases access to data for use by CDC scientists and programs, public health professionals, and academia. The effort reduces the operational costs of providing the data used to support public health responses.
- Epi Info™, a public domain suite of interoperable software tools, designed for the global community of public health to collect epidemiologic data during outbreak investigations.
- Publications such as *Morbidity and Mortality Weekly Report*[97] *(MMWR)* and *CDC Vital Signs*[98] provide timely public health guidance and scientific findings to a wide range of stakeholders. In FY 2017, *MMWR* was a leading resource for trusted information about Zika, the opioid crisis, and other threats to public health domestically and abroad. Traditional and social media coverage of *MMWR* remained stable in FY 2017, averaging in the top 3 percent compared with other journals. *MMWR* also ranked 2nd among 170 public, environmental, and occupational health journals, based on numbers of citations in the published literature. In FY 2017, each monthly *CDC Vital Signs* issue generated an average of about 650 media stories.

Laboratory Safety and Quality

Since 2015, CDC has reinvented its approach to laboratory safety and quality. CDC created a new position for a senior official to serve as the single point of accountability for laboratory safety and excellence. It consolidated all laboratory safety functions in a single new office, established new boards for the rigorous oversight of laboratory safety and quality, and spearheaded efforts to continually improve laboratory excellence across the agency. The Laboratory Safety and Quality request supports critical CDC laboratory safety infrastructure, programs, and initiatives and is the necessary complement to the Laboratory Standards and Services request, above, which supports efforts to reinvigorate laboratory training for CDC scientists.

CDC will continue investing in key efforts to strengthen laboratory safety and excellence across the agency. Key priorities include:

- **Comprehensive safety oversight:** CDC will continue to implement and support centralized oversight of biological, chemical and radiation safety across the agency, a vital investment to ensure optimal safety and security of CDC laboratories and the public.
- **Advancing the science of safety:** CDC aims to apply the same rigorous scientific methods to the safety of its laboratories that it uses to confront threats to the public's health. To spur this "science of safety," CDC will continue investing in one-time awards to laboratories across the agency that propose innovative research or solutions to critical laboratory safety challenges.
- **Ensuring unimpeachable laboratory quality:** CDC serves as the public health reference laboratory for the nation and around the world. In FY 2019, CDC will build on this foundation of scientific excellence and continue to provide tools, training, and expertise to enhance laboratory science and quality.

CDC protects the health of America with more than 150 laboratories that serve as the Common Defense of the Country against health threats. CDC scientists and other professionals use the latest technologies to detect

[97] https://www.cdc.gov/mmwr/index.html
[98] https://www.cdc.gov/mmwr/index.html

infectious organisms, foodborne outbreaks, and biosecurity threats; protect America's blood supply; screen for genetic and other health risk factors; monitor the health of communities; identify environmental hazards; and much more.

In 2015, CDC launched ambitious reforms to ensure that its laboratories are a national model of scientific excellence and safety. These reforms led to the creation of the position of the Associate Director for Laboratory Science and Safety—a senior official who serves as the single point of accountability for the science and safety of CDC's laboratories. Ensuring CDC laboratory staff have state-of-the-art training needed to meet 21st Century health threats to the public's health is a critical part of ensuring CDC's labs remain a national model of scientific excellence and safety.

Laboratory Safety and Training

The Laboratory Safety and Training portion of the Public Health Scientific Services' budget line will support efforts to develop laboratory training for CDC scientists. Maximizing the impact of CDC's laboratories requires a workforce of laboratory scientists trained in cutting-edge techniques and technology. A comprehensive training curriculum, including laboratory safety and quality courses, ensures that CDC's laboratory scientists are equipped to meet current and future public health challenges. In FY 2019, CDC will continue building upon its comprehensive curriculum of laboratory safety and quality training. CDC also provides rigorous internal oversight of its laboratories that work with the most dangerous pathogens and toxins in the world. This funding supports CDC's select agent compliance program, which will ensure its internal laboratories continue to comply with the Federal Select Agent Program's rules to secure these agents and protect the public's health.

Laboratory Standards and Services

CDC continually provides leadership and delivers innovative solutions to improve the nation's clinical and public health laboratories, patient care, and population health. Nearly 260,000 certified clinical laboratories are the common defense of the country by serving on the frontline of disease detection and prevention. Currently, laboratory test results influence over 70 percent[99,100] of care decisions. Diagnostic errors may cause misled, delayed, or incorrect diagnoses, resulting in thousands of deaths every year. Consequently, quality laboratory testing, as well as effective test selection and interpretation are vital for day-to-day public health and nationwide preparedness response to outbreaks of emerging infectious diseases and other health emergencies, such as the current opioid crisis.

Through a cross-cutting systems approach and in collaboration with public health and clinical laboratory partners CDC is able to address weaknesses in the nation's laboratory system.

In FY 2019, CDC will continue to:

- Provide scientific and technical guidance to the federally mandated Clinical Laboratory Improvement Amendments (CLIA) program. In partnership with the Centers for Medicaid and Medicare Services (CMS), and the Food and Drug Administration (FDA), advance the quality and safety of clinical and public health laboratory testing and operations nationwide.
- Operate the CDC Biorepository, which manages valuable collections of samples, including those from historical studies, and outbreak investigations to advance medical research and support future emergency responses.
- Strengthen access, quality, and use of laboratory data through advancing interoperability and standardization.

[99] http://journals.sagepub.com/doi/pdf/10.1258/acb.2011.011177

[100] http://journals.sagepub.com/doi/full/10.1177/2374289517701067

- Develop comprehensive laboratory competency guidelines to provide the foundation for improved laboratory quality, staff management, and professional development.
- Provide technical leadership in working with partners to support laboratory professionals through the design, development, and dissemination of cutting edge competency-based laboratory training curriculums and courses.
- Strengthen access, quality, and use of laboratory data through advancing interoperability and standardization
- Disseminate critical information and engage leadership of public health and clinical laboratory partners through CDC's Laboratory Outreach Communication System (LOCS).
- Collaborate with federal partners to implement the use of Emergency Use Authorization (EUA) diagnostic tests during an emergency.
- Enhance surge testing capacity for public health response by liaising with private sector clinical laboratories.

Public Health Workforce and Career Development Budget Request

A robust and well-trained public health workforce is critical to protecting America's health. CDC provides essential workforce and training programs that ensure a competent and sustainable public health workforce. Our fellowship programs strengthen the education and professional development of public health's first responders and ensure the current workforce has the updated knowledge they need to respond to any public health emergency that may arise. CDC provides leadership in national public health workforce efforts, and offers experiential service and learning opportunities in epidemiology, informatics, prevention effectiveness, policy, and leadership and management.

CDC's indispensable workforce and training programs provide staff, technical assistance, and education services across the agency and to state and local health departments. Our workforce is assigned to positions at CDC headquarters, quarantine stations, state and local health departments and other field assignments; they receive training and mentoring and provide direct service during their assignments. We have tailored our fellowships and curricula to reflect what our research on the public health workforce identifies as the areas of greatest need. A recent survey of human resources directors identified the highest priority workforce needs as epidemiologists, laboratory workers, and public health informatics specialists.[101]

Budget Request

CDC's FY 2019 request of **$45,000,000** for Public Health Workforce and Career Development, is $4,660,450 below the FY 2018 Annualized CR level.

CDC provides a public health rapid response force that stands ready to deploy at a moment's notice whenever America's health security is threatened. Our fellowships and training programs keep America safe by building a competent, sustainable workforce capable of surging in response to imminent public health threats; a well-trained public health workforce is our first line of defense against the next outbreak. The nation's public health workforce is facing ongoing and emerging challenges—health problems that require multifaceted solutions, use of new technology, collaboration with the health care sector, and the need for continuing education and training.

CDC works to attract the best and the brightest students to focus on public health as a career option—from sixth grade (Science Olympiad), to medical students (Epi Elective), to doctoral graduates (Preventive Medicine Residency), our programs run the gamut and do not stop at graduation. We also provide continuing education training for little to no cost for the professionals in the public health workforce to maintain their professional credentials and learn about new and emerging threats. CDC is committed to developing and cultivating careers in public health.

CDC hosts more than 450 fellows across 40 fellowship programs. Of these, approximately half of the participants are placed in state and local health departments. Fellows provide much-needed staff augmentation at a reduced cost—or even no cost—to state and local health departments[102]. Most of CDC's fellowship graduates continue pursuing careers in public health, which can help alleviate our nation's diminishing public health workforce infrastructure problem[103].

[101] Beck AJ, Leider JP, Coronado F, Harper E. State Health Agency and Local Health Department Workforce: Identifying Top Development Needs. Am J Public Health 2017 Sep;107(9):1418-1424. Epub 2017 Jul 20.

[102] http://www.cste2.org/2013eca/CSTEEpidemiologyCapacityAssessment2014-final2.pdf

[103] http://www.astho.org/phwins/National-Summary-Report-of-Workforce-Data/

Behavioral Risk Factor Surveillance System[1] State Table

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2018 +/- FY 2019
Alabama	$289,323	$289,323	$289,323	$0
Alaska	$263,099	$263,099	$263,099	$0
Arizona	$312,996	$312,996	$312,996	$0
Arkansas	$217,445	$217,445	$217,445	$0
California	$267,445	$267,445	$267,445	$0
Colorado	$263,996	$263,996	$263,996	$0
Connecticut	$266,950	$266,950	$266,950	$0
Delaware	$257,254	$257,254	$257,254	$0
District of Columbia	$242,910	$242,910	$242,910	$0
Florida	$244,865	$244,865	$244,865	$0
Georgia	$228,346	$228,346	$228,346	$0
Hawaii	$217,445	$217,445	$217,445	$0
Idaho	$263,996	$263,996	$263,996	$0
Illinois	$267,445	$267,445	$267,445	$0
Indiana	$267,445	$267,445	$267,445	$0
Iowa	$227,445	$227,445	$227,445	$0
Kansas	$217,445	$217,445	$217,445	$0
Kentucky	$258,351	$258,351	$258,351	$0
Louisiana	$264,445	$264,445	$264,445	$0
Maine	$175,491	$175,491	$175,491	$0
Maryland	$263,996	$263,996	$263,996	$0
Massachusetts	$263,985	$263,985	$263,985	$0
Michigan	$267,445	$267,445	$267,445	$0
Minnesota	$267,445	$267,445	$267,445	$0
Mississippi	$267,226	$267,226	$267,226	$0
Missouri	$266,445	$266,445	$266,445	$0
Montana	$236,481	$236,481	$236,481	$0
Nebraska	$267,445	$267,445	$267,445	$0
Nevada	$210,444	$210,444	$210,444	$0
New Hampshire	$265,445	$265,445	$265,445	$0
New Jersey	$267,445	$267,445	$267,445	$0
New Mexico	$263,996	$263,996	$263,996	$0
New York	$266,445	$266,445	$266,445	$0
North Carolina	$267,438	$267,438	$267,438	$0
North Dakota	$242,445	$242,445	$242,445	$0
Ohio	$263,996	$263,996	$263,996	$0
Oklahoma	$267,429	$267,429	$267,429	$0
Oregon	$265,718	$265,718	$265,718	$0
Pennsylvania	$267,445	$267,445	$267,445	$0
Rhode Island	$240,054	$240,054	$240,054	$0
South Carolina	$265,544	$265,544	$265,544	$0
South Dakota	$262,666	$262,666	$262,666	$0
Tennessee	$225,491	$225,491	$225,491	$0
Texas	$266,901	$266,901	$266,901	$0
Utah	$267,429	$267,429	$267,429	$0
Vermont	$262,445	$262,445	$262,445	$0
Virginia	$267,444	$267,444	$267,444	$0
Washington	$236,869	$236,869	$236,869	$0
West Virginia	$251,931	$251,931	$251,931	$0
Wisconsin	$267,445	$267,445	$267,445	$0

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2018 +/- FY 2019
Wyoming	$197,944	$197,944	$197,944	$0
Territories				
America Samoa	$45,000	$45,000	$45,000	$0
Guam	$104,889	$104,889	$104,889	$0
Micronesia	$45,000	$45,000	$45,000	$0
Palau	$20,348	$20,348	$20,348	$0
Puerto Rico	$150,000	$150,000	$150,000	$0
Virgin Islands	$125,000	$125,000	$125,000	$0
Subtotal States	$12,975,014	$12,975,014	$12,975,014	$0
Subtotal Territories	$490,237	$490,237	$490,237	$0
Total	**$13,465,251**	**$13,465,251**	**$13,465,251**	**$0**

[1]Table includes core funding from the Surveillance, Epidemiology, and Public Health Informatics budget activity and other CDC programs.

State Table: National Notifiable Diseases Surveillance System (NNDSS)[1,2,3]

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2018 +/- FY 2019
Alabama	$230,555	$225,901	$225,901	$0
Alaska	$165,170	$178,874	$178,874	$0
Arizona	$185,104	$178,818	$178,818	$0
Arkansas	$123,486	$142,208	$142,208	$0
California	$265,350	$229,306	$229,306	$0
Colorado	$79,155	$209,696	$209,696	$0
Connecticut	$204,882	$196,101	$196,101	$0
Delaware	$40,487	$41,219	$41,219	$0
Florida	$295,934	$254,110	$254,110	$0
Georgia	$150,445	$143,376	$143,376	$0
Hawaii	$174,836	$156,688	$156,688	$0
Idaho	$66,852	$73,080	$73,080	$0
Illinois	$281,272	$298,518	$298,518	$0
Indiana	$223,550	$226,180	$226,180	$0
Iowa	$271,392	$303,922	$303,922	$0
Kansas	$279,170	$233,897	$233,897	$0
Kentucky	$100,992	$100,903	$100,903	$0
Louisiana	$82,477	$143,055	$143,055	$0
Maine	$75,827	$144,818	$144,818	$0
Maryland	$213,259	$245,739	$245,739	$0
Massachusetts	$259,921	$208,586	$208,586	$0
Michigan	$118,320	$254,570	$254,570	$0
Minnesota	$287,466	$243,318	$243,318	$0
Mississippi	$79,630	$106,445	$106,445	$0
Missouri	$89,074	$74,569	$74,569	$0
Montana	$143,131	$116,465	$116,465	$0
Nebraska	$170,437	$166,170	$166,170	$0
Nevada	$178,185	$149,025	$149,025	$0
New Hampshire	$131,495	$146,009	$146,009	$0
New Jersey	$86,415	$205,929	$205,929	$0
New Mexico	$151,273	$159,612	$159,612	$0
New York	$275,418	$303,400	$303,400	$0
North Carolina	$168,577	$201,582	$201,582	$0
North Dakota	$102,423	$96,225	$96,225	$0
Ohio	$209,818	$237,350	$237,350	$0
Oklahoma	$145,651	$160,359	$160,359	$0
Oregon	$221,203	$181,665	$181,665	$0
Pennsylvania	$247,276	$200,828	$200,828	$0
Rhode Island	$166,284	$153,199	$153,199	$0
South Carolina	$150,082	$127,484	$127,484	$0
South Dakota	$139,272	$123,537	$123,537	$0
Tennessee	$187,560	$282,107	$282,107	$0
Texas	$44,923	$107,778	$107,778	$0
Utah	$263,267	$229,414	$229,414	$0
Vermont	$198,324	$196,047	$196,047	$0
Virginia	$291,316	$331,443	$331,443	$0
Washington	$221,469	$259,472	$259,472	$0
West Virginia	$130,841	$85,950	$85,950	$0
Wisconsin	$221,248	$202,372	$202,372	$0
Wyoming	$64,452	$81,787	$81,787	$0
Territories	--	--	--	--

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2018 +/- FY 2019
Guam	$92,177	$93,836	$93,836	$0
Marshall Islands	$2,652	$5,947	$5,947	$0
Micronesia	$2210	$8,809	$8,809	$0
Northern Mariana Islands	$2210	$8,089	$8,089	$0
Palau	$2210	$43,970	$43,970	$0
Puerto Rico	$76,130	$22,375	$22,375	$0
Virgin Islands	$58,187	$23,564	$23,564	$0
Cities	--	--	--	--
Chicago	$87,385	$126,386	$126,386	$0
District of Columbia	$1	$29,602	$29,602	$0
Houston	$148,574	$145,754	$145,754	$0
Los Angeles	$178,705	$174,504	$174,504	$0
New York City	$257,726	$324,857	$324,857	$0
Philadelphia	$160,210	$120,307	$120,307	$0
Subtotal, States	**$8,654,946**	**$9,119,104**	**$9,119,104**	**$0**
Subtotal, Territories	**$235,776**	**$206,591**	**$206,591**	**$0**
Subtotal, Cities	**$832,601**	**$921,411**	**$921,411**	**$0**
Total	**$9,723,323**	**$10,247,105**	**$10,247,105**	**$0**

[1]This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit http://wwwn.cdc.gov/FundingProfiles/FundingProfilesRIA/.

[2] http://www.cdc.gov/exposurereport/

[3] CFDA NUMBER: 93-521 [Discretionary]

ENVIRONMENTAL HEALTH

(dollars in millions)

	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$198.363	$162.638	$157.000	-$5.638
PPHF	$17.000	$15.349†	$0.000	-$15.349
Total Request	**$215.363**	**$177.987**	**$157.000**	**-$20.987**
FTEs	453	414	404	-10
Environmental Health Laboratory	$56.019	$55.769	$55.894	+$0.125
Environmental Health Activities	$44.492	$44.297	$34.106	-$10.191
Amyotrophic Lateral Sclerosis Registry (ALS) (non-add)	$9.977	$9.932	$0.000	-$9.932
Climate Change (non-add)	$9.977	$9.932	$0.000	-$9.932
Environmental & Health Outcome Tracking Network	$33.920	$33.769	$25.000	-$8.769
Asthma	$28.932	$28.803	$25.000	-$3.803
Childhood Lead Poisoning Prevention	$17.000	$15.349	$17.000	+$1.651
PPHF (non-add)	*$17.000*	*$15.349*†	*$0.000*	*-$15.349*
Flint Response	$35.000	N/A	N/A	N/A

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

[1] FY 2017 totals include funding for Flint, Michigan response, which includes $15 million for Lead Prevention (available through FY 2018) and $20 million for a Lead Exposure Registry and Advisory Council (available through FY 2020).

Enabling Legislation Citation: PHSA Title II §§ 301, 307, 310, 311, 317*, 317A*, 317B*, 317I*, 327, 352, 361, 366, 1102; Title XVII*

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Contracts, Competitive Grants/Cooperative Agreements

Environmental health is the relationship between people and the environment—air, water, soil, community, workplace, school, and home. Safe and healthy environments promote healthier people and communities. CDC helps protect Americans from environmental hazards. CDC investigates the relationship between environmental factors and health; develops guidance to address environmental health issues; and builds partnerships to discuss health impacts and support collaborative decision making.

CDC's FY 2019 request of **$157,000,000** for Environmental Health is $20,987,276 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions and Amyotrophic Lateral Sclerosis registry and Climate Change eliminations from the FY 2018 President's Budget Request. In FY 2019, CDC will focus its environmental health portfolio on core activities required to protect America's health.

ENVIRONMENTAL HEALTH

BY THE NUMBERS…

Childhood Lead Poisoning Prevention

- Lead poisoning poses a social and economic burden on families, communities, and the country, totaling $192-$270 billion dollars.[1]
- Nearly 24 million homes in the U.S. have deteriorated lead-based paint and lead-contaminated house dust.[2] Conservative estimates suggest that over 535,000 children under the age of 6 have blood lead levels high enough to cause health problems.[1,3]
- CDC programs saved $11.7 billion in lifetime earnings by identifying about 70,000 children each year with blood lead levels over CDC's reference value and ensuring appropriate medical and environmental follow-up.

Tracking Network

- The Environmental Public Health Tracking Network has 20 data sets, 107 indicators, and 419 health measures, including data on air quality, water, and health outcomes.
- CDC state tracking network partners work in communities with more than 190 million people, or 62% of the U.S. population.

Environmental Health Lab

- CDC's Environmental Health Laboratory is the world's most advanced, state-of-the-art public health laboratory and measures more than 300 chemicals and nutrition indicators in participants National Health and Nutrition Examination Survey (NHANES) participants.
- CDC assured the quality of newborn screening for 58 diseases, in all 50 states and 84 countries, directly impacting 670 laboratories in FY 2017.

Asthma

- Nearly 25 million Americans suffer from asthma today, including more than six million children.[4]
- Asthma causes 4,000 deaths and results in 1.6 million emergency department visits per year.[4]
- Care for asthma costs the nation $56 billion annually, much of this is a result of care for uncontrolled asthma.[5]
- The National Asthma Control Program's return on investment is compelling: it is estimated that, for every dollar spent on national and state-level programs, $71 in asthma-related expenditures is saved.[6]

Safe Water

- More than 320 million adults and children in the U.S. rely on our nation's water supply for drinking, recreation, sanitation, and hygiene.[7]
- 45 million Americans use drinking water sources that are not monitored for contaminants and those in rural or tribal communities are particularly at risk.[8]
- CDC grantees sampled almost over 2,400 wells in FY 2017 and found that approximately 20% of the wells had contaminated water that was considered unsafe to drink.

References:

[1] Gould, E. (2009). Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control. Environmental Health Perspectives, 117(7), 1162-1167. https://ehp.niehs.nih.gov/wp-content/uploads/117/7/ehp.0800408.pdf (Accessed on December 19 2017)

[2] Centers for Disease Control and Prevention. National Center for Environmental Health (2014). Prevention Tips: How are children exposed to lead? https://www.cdc.gov/nceh/lead/tips.htm (Accessed on December 19 2017)

[3] Centers for Disease Control and Prevention. Blood Lead Levels in Children Aged 1–5 Years — United States, 1999–2010. MMWR 2013;62: 245-248. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6213a3.htm (Accessed on December 19 2017)

[4] National Center for Health Statistics. Centers for Disease Control and Prevention. Asthma. http://www.cdc.gov/nchs/fastats/asthma.htm (Accessed December 19 2017)

[5] United States Environmental Protection Agency. Asthma Facts. May 2017. https://www.epa.gov/sites/production/files/2017-08/documents/2017_asthma_fact_sheet.pdf (Accessed December 19 2017)

[6] Centers for Disease Control and Prevention. National Center for Environmental Health (2013). National Asthma Control Program: An Investment in America's Health. https://www.cdc.gov/asthma/pdfs/investment_americas_health.pdf (Accessed on December 19 2017)

[7] United States Census Bureau. U.S. Population Clock. https://www.census.gov/popclock/ (Accessed on December 19 2017)

[8] Centers for Disease Control and Prevention. National Center for Environmental Health (2016). Private Well Initiative. https://www.cdc.gov/nceh/hsb/cwh/pwi.htm

Environmental Health Funding History	
Fiscal Year	Dollars (in millions)
2015 (BA)	$166.404
2015 (PPHF)	$13.000
2016 (BA)	$165.303
2016 (PPHF)	$17.000
2017 Final (BA)	$198.363
2017 Final (PPHF)	$17.000
2018 Annualized CR (BA)	$162.638
2018 Annualized CR (PPHF)†	$15.349
2019 President's Budget (BA)	$157.000
2019 President's Budget (PPHF)	$0.000

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

CDC Environmental Health Activities Help Protect People Throughout the Day

- **Waking up in the morning**
  - When preparing their morning coffee or tea, about 1 in 9 American residents get their drinking water from private wells.[104] Many people who get their water from private water sources may be exposed to contaminants that can make them sick without knowing it.
  - CDC's Safe WATCH program funds 14 states and five local health departments to address problems with wells and other private drinking water sources in their communities. CDC and the Connecticut Department of Public Health identified 151 wells with elevated levels of arsenic and uranium.[105]

- **Dropping the kids off at school**
  - After getting off the school bus or out of the car, kids in the United States spend nearly seven hours at school.[106] The quality of the air kids breathe during the school day has an important impact on their respiratory health.
  - CDC's Childhood Lead Poisoning Prevention Program encourages its grantees to partner with state and local education agencies, and CDC has developed a paper describing educational interventions for children affected by lead.
  - About 1 in 12 children currently has asthma, a disease that affects the lungs and can cause difficulty breathing.[107] Of these children, about 60% have uncontrolled asthma or require long-term control medications to avoid asthma attacks.[108] Uncontrolled asthma is costly and causes kids to miss school.
  - Medical expenditures due to asthma hospitalizations and emergency room visits cost around $50.1 billion or about $3,300 per person with asthma each year. When indirect costs from days missed at school and work are factored in, that number climbs to $56 billion.[109] Society loses over 14 million work days and nearly 4 million school days per year because of asthma.[110]
  - Kids can control their asthma at school (and home) by taking their medicine as directed and avoiding triggers in the air around them that can cause an attack. CDC's National Asthma Control Program advances asthma care and improves asthma management in schools through a comprehensive approach to asthma control in 25 funded states, including school asthma programs. About 2 in 5 people with asthma served by CDC-funded state asthma programs have received asthma self-management training. Self-management training teaches people with asthma how to manage their disease, avoid triggers, and prevent attacks.

- **Getting to work**
  - Whether by car, bicycle, or bus, commuting to and from work is the time of day when Americans' exposure to air pollution is the highest.[111] Ground-level ozone, the main part of smog, and particle pollution are just two of the many threats to air quality and commuters' health. Air pollution can make it harder for people with asthma and other respiratory diseases to breathe. CDC's National Environmental Public Health Tracking (NEPHT) program collects and delivers data about air pollutants and other environmental hazards to equip people and communities with the information they need to protect themselves. Since 2005, state and local public health officials have used NEPHT

[104] https://www.cdc.gov/nceh/ehs/safe-watch/background.html
[105] https://www.cdc.gov/nceh/ehs/safe-watch/success-stories.html
[106] https://nces.ed.gov/surveys/sass/tables/sass0708_035_s1s.asp
[107] https://www.cdc.gov/asthma/asthmadata.htm
[108] https://www.cdc.gov/asthma/asthma_stats/severity_child.htm
[109] https://www.cdc.gov/asthma/pdfs/investment_americas_health.pdf
[110] http://www.sciencedirect.com/science/article/pii/S0091674910016349
[111] https://www.sciencedirect.com/science/article/pii/S143846391500005X

data to complete more than 450 data-driven actions that prevent or control adverse health effects from environmental exposures.

- **Eating out for lunch**
  - At mealtime, about 1 in 2 Americans will eat food prepared away from home in cafeterias, restaurants, and sports venues.[112] More than half of all foodborne illness outbreaks in the United States are associated with restaurants.[113]
  - CDC's Environmental Health Specialists Network investigates food preparation practices and other factors that could contribute to restaurant-related foodborne illness outbreaks. CDC improves the national food safety system[114] through CDC's National Environmental Assessment Reporting System.
  - Over 5,200 food workers and others from all 50 states and 92 countries have registered for CDC's free, interactive e-Learning course to learn about actions that prevent food contamination and reduce foodborne illness outbreaks.

- **Spending time at home**
  - The place where children are supposed to be the safest is the same place where most children are exposed to lead—at home. Approximately 24 million housing units across the U.S. have deteriorated lead paint and elevated levels of lead-contaminated house dust. More than 4 million of these dwellings are homes to one or more young children.[115]
  - Children and families may also be exposed to lead that leaches into their tap water through failing lead pipes. Roughly, 10 million U.S. homes and buildings have water service lines that are at least partially made of lead.[116] Over half a million children under 5 years have blood lead levels above the current reference level.[117]
  - CDC's Childhood Lead Poisoning Prevention Program develops programs and policies to prevent childhood lead poisoning and other housing-related health hazards. CDC connects children with elevated blood lead levels to case management, which involves coordinating and monitoring the services required to reduce their blood lead levels below the reference level.

- **Enjoying community recreation**
  - CDC protects the American people during their 300 million pool visits every year. Hazards such as drowning, exposure to pool chemicals, or waterborne illness from swimming in unsafe pools and aquatic facilities combine to cause over 3,000 deaths, 5,000 hospitalizations, and thousands of illnesses annually.
  - CDC supports the prevention of waterborne illness such as Legionnaire's disease, and other risks associated with recreational water sources though the national Model Aquatic Health Code[118], which provides voluntary guidance for local and state agencies on the design, construction, operation, and maintenance of pools, spas, and hot tubs.

- **Responding to adverse weather events**
  - CDC defends the country by providing environmental health security. CDC works to secure communities against the effects of adverse weather events and flooding.

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[112] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3639863/
[113] https://www.cdc.gov/nceh/ehs/ehsnet/index.htm
[114] The food safety system is made up of food safety programs across the US. These are the state and local programs that investigate foodborne illness outbreaks, issue permits, and conduct inspections in restaurants and other facilities.
[115] https://www.cdc.gov/nceh/lead/
[116] U.S. Environmental Protection Agency, Office of Water. *Lead and copper rule revisions*. Washington, D.C. October, 2016
[117] CDC's blood lead level of concern or reference value is 5 micrograms per deciliter (µg/dL). CDC recommends the initiation of public health action if a child age 1-5 has a blood lead level above 5 micrograms per deciliter (µg/dL).
[118] https://www.cdc.gov/mahc/index.html

- During the 2017 hurricane season, CDC deployed hundreds of staff to work on the hurricane response. These staff protected people from toxic exposures spread around by the flood waters and assessed the impact of the storm on healthcare facilities. They also worked with Federal Emergency Management Agency (FEMA) to prioritize remediation efforts; inform residents about effectively and safely cleaning up mold; and help local agencies with health communications.

Childhood Lead Poisoning Prevention Budget Request

There is no known safe level of lead exposure for children. Lead exposure can affect nearly every system in the body. Even low levels of lead in the blood can damage a child's brain and nervous system, slow growth and development, cause problems with hearing and speech, and affect IQ, academic achievement, and behavior. Lead poisoning also poses a social and economic burden on families, communities, and the country, totaling $192-$270 billion dollars[119]. Studies indicate that for every $1 invested in lead paint hazard control, $17 to $221 is returned in health benefits including increased IQ, higher lifetime earnings and tax revenue, reduced spending on special education, and reduced criminal activity.[120]

Lead poisoning is preventable, and the effects of elevated blood lead levels can be mitigated through timely provision of educational, medical, and behavioral interventions and social services. CDC's Lead Poisoning Prevention Program provides a benefit hundreds of times greater than the cost of the program. From FY 2014 to FY 2016, CDC supported state lead programs that identified over 200,000 children (~70,000 per year on average) under 6 who had a blood lead level over CDC's reference value. By helping to identify these children and ensuring appropriate medical and environmental follow-up, CDC-funded programs potentially helped save $11.7 billion in lifetime earnings that would have been lost due to lowered IQ for these children.

Despite significant reductions in lead poisoning over the last several decades, homes remain the primary sources of lead exposure for children. Nearly 24 million homes in the United States still have deteriorated lead-based paint and lead-contaminated house dust.[121] Even the most conservative estimates suggest that more than 535,000 children under the age of 6 years old have blood lead levels high enough to damage their health.[122,123]

CDC's Childhood Lead Poisoning Program works with states to monitor childhood blood lead levels to prevent lead poisoning and help those who have elevated blood lead levels by assuring appropriate follow up and linkage to services. The program also supports state and local efforts to collect vital lead data that enables them to target and implement primary prevention and response activities. The program's surveillance and technical assistance functions are unique amongst federal agencies, and provide data relied upon by state, local, and federal officials.

Budget Request

CDC's FY 2019 request of **$17,000,000** for Childhood Lead Poisoning Prevention is $1,650,698 above the FY 2018 Annualized CR level. Funding for the program builds on CDC's past success in reducing children's blood lead levels in the United States. In FY 2019, CDC will continue 1) working to ensure a robust lead poisoning surveillance system; 2) funding 35 state and local lead poisoning prevention programs that serve over 13 million children under age 6; 3) advising state and local agencies and stakeholders in lead poisoning prevention; 4) providing epidemiological and laboratory expertise; and 5) monitoring trends in childhood blood lead levels. Additionally, with funding appropriated in FY 2017 through the Water Infrastructure Improvement for the Nation (WIIN) Act, CDC is establishing a new Lead Exposure and Prevention Advisory Committee to advise the HHS Secretary on issues related to programs and services available to individuals and communities exposed to lead, research and best practices, and identification of effective interventions and services.

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[119] Gould, E. (2009). Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control. Environmental Health Perspectives, 117(7), 1162-1167. https://ehp.niehs.nih.gov/wp-content/uploads/117/7/ehp.0800408.pdf (Accessed on December 19 2017)

[120] Gould, E. (2009). Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control. *Environmental Health Perspectives*, 117(7), 1162-1167.

[121] National Center for Environmental Health (2014). *Prevention Tips: How are children exposed to lead?* Retrieved from https://www.cdc.gov/nceh/lead/tips.htm

[122] Greater than or equal to the reference value of 5 micrograms per deciliter (µg/dL)

[123] Centers for Disease Control and Prevention. Blood Lead Levels in Children Aged 1–5 Years — United States, 1999–2010. MMWR 2013;62: 245-248.

Funding State and Local Health Departments for Lead Surveillance

Effective surveillance is the key to successful lead poisoning prevention. CDC's support enables state and local health departments to conduct their own child blood lead surveillance. Data collection helps them to accurately identify potential sources of lead; control lead hazards before children are exposed; and target primary prevention and interventions toward people in high risk buildings, blocks, and neighborhoods. Health departments can then provide blood lead testing and link exposed children to healthcare.

In FY 2018, CDC will fund 48 grantees that serve approximately 20 million children under age 6. CDC partners with state and local lead poisoning prevention programs to identify the children at highest risk of lead exposure, get them tested, and connect children with high blood lead levels to treatment and case management services.

Flint, Michigan Water Contamination

Between April 2014 and October 2015, approximately 99,000 residents of the City of Flint, MI, were exposed to lead when their water source was switched from the Detroit Water Authority to the Flint Water System (FWS). The lead levels in Flint tap water increased above EPA's Lead and Copper Rule limit because the FWS did not use corrosion control. In children, lead exposure can seriously effect cognitive and physiological development. Lead can reduce kidney function and increase risk of hypertension and essential tremor among adults. The lead contamination crisis in Flint, Michigan has renewed the nation's focus on this major problem.

The Water Infrastructure Improvement for the Nation (WIIN) Act provided $20 million[124] to implement a lead exposure registry and an advisory committee. During the crisis, CDC assisted Flint, Michigan with monitoring blood lead levels in more than 50% of the community's children under 6 years of age and connected more than 90% of children with elevated blood lead levels to case management. In FY 2017, CDC used WIIN funds to expand the Childhood Lead Poisoning grants to 14 new grantees for two years, and award $3.2 million to Michigan State University to develop and administer the Flint Lead Exposure Registry. The Michigan State University funding is the first installment of a 4-year, $14.4 million grant.

Childhood Lead Poisoning Grants[1,2]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	48	48	48
- New Awards	14	0	0
- Continuing Awards	34	48	48
Average Award	$0.305	$0.416	$0.299
Range of Awards	$0.102-$0.428	$0.102-$0.428	$0.100-$0.445
Total Awards	$14.968	$19.968	10.990

[1] These funds are not awarded by formula.

[2] FY 2017 funding includes $10,990,000 from PPHF and $4,000,000 from the Water Infrastructure Improvement for the Nation (WIIN) Act. FY 2018 funding estimates include $10,990,000 from PPHF and $9,000,000 from the WIIN Act. Since WIIN Act funding is not available in FY 2019, the program will decrease funding for all 48 grantees.

[124] Funding is available through FY 2020.

Environmental and Health Outcome Tracking Network Budget Request

The Environmental and Health Outcome Tracking Network is a dynamic, web-based system that uniquely integrates health data with environmental data for people to use. The National Environmental Health Tracking Program is the only resource that brings together environmental hazard, exposure, and health data into one web-based network. This unique and foundational surveillance system helps protect the public's health by making environmental health efforts work faster, better, and cost less. Tracking also helps researchers better understand the connections between environmental conditions and health outcomes.

Data is most useful in stopping environmental health threats when it focuses on specific geographic levels like county, city, and zip code. This makes it easier for public health professionals to respond in case of an emergency. CDC funded tracking networks work in communities that include more than 190 million people, or 62% of the U.S. population. To date, the national Tracking Network has 20 datasets, 107 indicators, and 419 health measures on data such as air quality, water, asthma, and birth defects. CDC's Tracking Program collaborates with other CDC programs, Federal agencies, and state and local health departments to increase the quality and availability of data sources and improve the utilization of Tracking Network data to protect the health of Americans.

Budget Request

CDC's FY 2019 request of **$25,000,000** for the Environmental and Health Outcome Tracking Network is $8,769,106 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reduction from the FY 2018 President's Budget Request. At this level, CDC will focus on capacity building for existing grantees to ensure that public health actions based on these data continue.

Funding State and Local Tracking Programs

CDC funds state and local tracking programs through competitive cooperative agreements to create, maintain, and add to their own local tracking networks, as well as to contribute to and receive data from the national system. According to the Council for State and Territorial Epidemiologists, less than half of all states report having adequate environmental epidemiology capacity. CDC supports the maintenance of vital environmental health surveillance and epidemiology capacity.

CDC supports over 200 state personnel and facilitates a mentoring program with current and potential grantees. The program also helps states save money. Minnesota estimates that it saves $3.6 million per year from its tracking program's public health data access website by making data publically available and reducing the number of public data inquiries the state has to process.[125]

Tracking Network Grants[1]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	26	26	26
- New Awards	0	0	0
- Continuing Awards	26	26	26
Average Award	$0.869	$0.869	$0.569
Range of Awards	$0.513–$1.200	$0.513–$1.200	$0.213–$0.900
Total Awards	$22.605	$22.605	$14.805

[1]These funds are not awarded by formula.

[125] http://www.health.state.mn.us/divs/hpcd/tracking/stories/index.html

Environmental Health Laboratory Budget Request

CDC's Environmental Health Laboratory improves the detection, diagnosis, treatment, and prevention of diseases resulting from exposure to harmful environmental chemicals, and diseases needing advanced laboratory measurement for accurate diagnosis. The lab is widely recognized for its expertise in measurement science. It develops and applies innovative techniques to assess disease risk, determine exposure levels among the U.S. population, and respond rapidly to public health emergencies. It also supports state public health laboratories in assessing harmful exposures in their communities and works directly with state newborn screening programs to implement and ensure accurate tests for early detection of diseases that cause severe disability or death when untreated. In addition, the lab harmonizes diagnostic tests for chronic diseases to ensure results are sufficiently accurate and precise for diagnosing disease, guiding treatment and prevention, and supporting high-quality health research.

Budget Request

CDC's FY 2019 request of **$55,894,000** for the Environmental Health Laboratory is $125,315 above the FY 2018 Annualized CR level. In FY 2019, CDC will continue to maintain the world's most advanced, state-of-the-art public health laboratory, delivering the unique diagnostic methods, profiles of measurements, and measurement quality needed for public health decisions.

Using Biomonitoring to Assess Americans' Exposure to Harmful Chemicals and Nutrition Status

CDC uses biomonitoring—measurements in human blood and urine—to help identify harmful environmental exposures or nutrition deficiencies among the U.S. population. The Environmental Health Laboratory measures more than 300 chemicals and nutrition indicators in participants of the ongoing National Health and Nutrition Examination Survey (NHANES) and publishes findings in the regularly updated National Report on Human Exposure to Environmental Chemicals and National Report on Biochemical Indicators of Diet and Nutrition in the U.S. Population. These reports are the most comprehensive assessments of Americans' exposure to environmental chemicals and Americans' nutrition status, providing national reference data that helps physicians, scientists, and public health officials identify harmful exposures and adequate nutrition levels. CDC also funds states to establish or expand their capacity to measure environmental chemicals in human samples and conduct targeted or state population-based biomonitoring.

In FY 2019, CDC expects to release new biomonitoring results, adding to previously published data for 308 chemicals and 58 nutrition indicators. CDC will also collaborate on 85 studies that assess environmental exposures in high risk population groups or investigate the relationship between environmental exposures and adverse health effects. These studies help determine safe and harmful levels of exposure, identify true hazards, avoid unnecessary regulation, and assess the effectiveness of exposure reduction interventions.

Better Disease Diagnosis and Treatment by Improving the Quality of Laboratory Tests

Accurate and precise laboratory measurements are essential for correct diagnosis and treatment of disease. CDC uses expert measurement science to improve the accuracy, precision, and cost effectiveness of laboratory tests for environmental chemicals, nutrition indicators, heart disease, chronic diseases, and newborn screening. The lab develops reference methods and materials and provides quality assurance programs and trainings to assure the quality of tests in state, clinical, research, and academic laboratories. CDC's efforts reach more than 2,200 domestic and international laboratories, helping reduce diagnosis and treatment errors, unneeded medical procedures, and repeat laboratory tests. CDC also uses its unique, reference-quality methods to assist other federal agencies as they address emerging issues, such as ensuring the quality of blood lead measurements. In FY 2019, CDC will provide quality assurance programs and materials, conduct trainings, and transfer laboratory testing methods to state, local, research, and clinical laboratories. CDC will help state newborn screening programs use new molecular testing and data management techniques to improve detection of diseases like

cystic fibrosis and congenital adrenal hyperplasia. CDC will continue partnering with private sector companies and laboratory test manufacturers to improve accuracy and precision of test results.

Earlier Identification of New Diseases in Newborns by Supporting State Screening

CDC works directly with laboratories in states to implement newborn screening for new diseases, providing training, technical assistance, and quality assurance materials that help ensure accurate test results. Since 2008, CDC has worked to increase the number of states and territories that conduct newborn screening for severe combined immunodeficiency (SCID), a deadly disease that is curable if treated soon after birth. To date, CDC-funded programs have screened more than two million babies for SCID and serve as models for other states implementing population-based screening.

CDC recognizes that states and territories need support implementing testing for other treatable newborn diseases. Since 2015, three additional conditions have been added to the list HHS recommends for screening, but no more than two states are testing for any of these three new conditions. In FY 2019, CDC will fund the second year of a two-year cooperative agreement with up to three states to provide necessary laboratory equipment, staffing, and supplies to conduct population-based testing for new conditions. These awards build on CDC's successful newborn screening program and utilize CDC's unique expertise in working with state newborn screening laboratories.

Asthma Budget Request

Nearly 25 million Americans suffer from asthma today, including more than six million children. Asthma takes almost 4,000 lives and causes 1.6 million emergency department visits per year. The disease also costs the nation $56 billion annually[126]. Asthma disproportionately affects African American children, who are twice as likely to be hospitalized and over four times more likely to die from asthma than white children. The National Asthma Control Program seeks to decrease the number of deaths, hospitalizations, emergency department visits, and reduce limitations on activity, including school days or workdays missed due to asthma, by helping millions of Americans gain control over their condition and reducing asthma attacks from poorly controlled asthma.

Budget Request

CDC's FY 2019 request of **$25,000,000** for the National Asthma Control Program is $3,803,061 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reduction from the FY 2018 President's Budget Request. Since existing healthcare systems provide access to asthma healthcare providers and medication, CDC focuses its efforts on activities that promote population health. In FY 2019, CDC will offer education and expertise, quantify risks and vulnerabilities to asthma control, and fund state health departments to implement comprehensive asthma control programs. In FY 2019, CDC will prioritize proven prevention and control efforts that reduce the number of asthma hospitalization and emergency department visits.

Comprehensive Asthma Control Programs

No single intervention can, by itself, achieve asthma control on a population level. CDC implements a tiered approach to asthma control by using interventions with the strongest evidence of effectiveness, delivered as a comprehensive package. For people with asthma, a comprehensive approach assures availability of and access to guidelines-based medical management and appropriate medication use. For people whose asthma remains poorly controlled, additional steps provide progressively more individualized services, such as self-management education and home- and school-based trigger reduction.

CDC funds 25 state health departments. These programs focus efforts on geographic areas or communities with a high or disproportionate burden of asthma. CDC funds have helped states achieve success. For example, the New Mexico asthma program showed emergency department visits reduced by 90% and asthma-related hospitalizations went down by 93% among participants at a hospital that implemented a self-management education program with a certified asthma educator. Also, the New York State Asthma Program uses community health worker visits as an opportunity to provide tips on asthma management and how to reduce asthma triggers. In Buffalo, the effort reduced asthma attacks and symptoms by 67% and increased daily asthma medication use from 83% to 100% among participants.

CDC focuses its efforts on comprehensive asthma control programs at the state level. In FY 2019, CDC will prioritize proven prevention and control efforts that reduce the number of asthma hospitalization and emergency department visits among children. Collaborative efforts across states to develop best practices and to test, scale, and deploy innovative approaches that meet local needs will continue.

Asthma Surveillance

Asthma control efforts cannot succeed without effective asthma surveillance. State and local health departments rely on asthma surveillance to accurately direct their efforts to reduce the burden of asthma. CDC provides state-specific adult and child asthma prevalence data and other important measures of asthma control through existing data systems in the agency. The Behavioral Risk Factor Surveillance System (BRFSS) administers

[126] United States Environmental Protection Agency. Asthma Facts. May 2017. https://www.epa.gov/sites/production/files/2017-08/documents/2017_asthma_fact_sheet.pdf (Accessed December 19 2017)

an in-depth Asthma Call-Back Survey (ACBS) and the National Health Interview Survey (NHIS) publishes national estimates of asthma burden. In FY 2019, CDC will continue to support the use of ACBS, and publish national estimates of asthma burden.

Asthma Grants to Health Departments[1]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	25	25	25
- New Awards	0	0	0
- Continuing Awards	25	25	25
Average Award	$0.604	$0.604	$0.508
Range of Awards	$0.450–$0.800	$0.450–$0.800	$0.350–$0.700
Total Awards	$15.704	$15.704	$12.704

[1]These funds are not awarded by formula.

Environmental Health Activities Budget Request

CDC helps provides environmental health security. CDC, in conjunction with its partners within HHS and the rest of the U.S. government, works to secure communities against the effects of adverse weather events and flooding. Americans are impacted by environmental health threats to the water we drink, the air we breathe, the food we eat, and the spaces where we live, work, and play. The World Health Organization (WHO) estimates that, overall, 13% of the disease burden in the United States is due to environmental factors. The WHO also estimates that 5.6 million disability-adjusted life years and 398,000 deaths annually can be attributed to environmental factors in the United States.[127]

CDC programs funded under Environmental Health Activities monitor environmentally related diseases; respond to urgent public health threats; provide training and guidance for the nation's environmental health workforce; assist in emergency preparedness and response efforts; and support grants that improve state and local capacity.

Environmental health threats include drinking water contamination; unsafe retail food practices; flooding and extreme heat; the expansion of disease vectors; and radiation and chemical emergencies. CDC, in conjunction with partners within HHS and across the federal government, protects and secures the American people from these threats by identifying the environmental exposures that make people sick; investigating how those exposures are transmitted in the environment; and finding ways to eliminate the threat to people's health—thereby saving money and lives.

Budget Request

CDC's FY 2019 request of **$34,106,000** for Environmental Health Activities is $10,191,121 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions and proposed elimination of the Amyotrophic Lateral Sclerosis (ALS) registry and the Climate and Health program included in the FY 2018 President's Budget Request. In FY 2019, the Environmental Health Activities budget funds core safe water, food safety, and environmental health security, preparedness, and emergency response activities.

Amyotrophic Lateral Sclerosis Registry

The budget eliminates the ALS registry and the related research program. NIH-funded research on ALS will continue. External researchers may still use biospecimens previously obtained from the ALS biorepository. The Budget would eliminate funding for extramural researcher-initiated studies to explore the causes of ALS and potential risk factors and the registry.

Climate and Health

Elimination of the program would end direct funding to states regarding health effects of climate change. States will continue to have access to other funds that would allow them to prepare and respond to public health emergencies, including natural disasters and adverse weather events. The Budget would eliminate funding for 18 state and local health departments and six tribal and territorial organizations.

Environmental Health Security, Emergency Preparedness, and Response

CDC works to secure communities against the effects of adverse weather events and flooding. During the 2017 hurricane season, CDC deployed hundreds of staff to work on the hurricane response, including environmental health experts. These staff protected people from toxic exposures spread around by the flood waters and assessed the impact of the storm on healthcare facilities. They also worked with the Assistant Secretary for

[127] Pugh, KH and Zarus, GM. May 2012. "The Burden of Environmental Disease in the United States." Journal of Env. Health. Volume 74, Number 9.

Preparedness and Response (ASPR) and FEMA to prioritize remediation efforts; inform residents about effectively and safely cleaning up mold; help local agencies with health communications, and more. CDC also works to keep recreational water ways safe from environmental toxins.

CDC provides critical assistance and expertise to help federal, state, and local entities respond to disease outbreaks and emergencies; investigate and respond to toxic health threats; provide unique expertise and training regarding radiation; and work to ensure that the nation has a strong and knowledgeable environmental health workforce now and in the future. CDC's environmental health workforce supports all non-infectious disease emergency response scenarios (chemical, radiological, and natural disasters).

Preparedness for and response to radiological and nuclear incidents are uniquely challenging for public health and require specific skill sets not readily available within state and local public health communities. The release of radioactive material would require consideration of protective measures (e.g., evacuation and shelter-in-place), provision of subject matter expertise in support of multi-agency coordination of consequence management activities, and consideration of radiological and nuclear impacts upon critical response and recovery.

During a radiological and nuclear incident, there would be significant competing demands for relevant subject matter experts at every level of the response. In addition, risk communication, specialized laboratory response, epidemiology, and medical countermeasures activities require personnel with expertise and competencies in radiological and nuclear response. CDC has the unique staffing expertise required to lead the public health response to radiological and nuclear incidents.

As a key public health authority on radiation and health, CDC’s radiation guidelines help public officials and clinicians prepare for and respond to radiation emergencies and treat exposures. Radiation experts from CDC assisted in major nuclear disasters, such as the Fukushima Daiichi incident in 2011, and stand ready for a 24/7 response to new threats. Since FY 2013, CDC has provided more than 4,300 emergency radiation preparedness toolkits to clinicians and state and local public health workers. In FY 2016, CDC launched online training modules for public health professionals on risk communication and use of federal assets during a radiation emergency. CDC’s guidance and expertise informed the planning for and response to a national-level exercise that simulated detonation of an improvised nuclear device in lower Manhattan.

Environmental emergencies and disease outbreaks can threaten people anywhere in the country at any time. CDC’s environmental health experts assist in federal and state responses to disease outbreaks and emergencies. For example, CDC provided leadership in environmental health emergency management during the response to the lead contamination of drinking water in Flint, Michigan. CDC activated the Emergency Operations Center, conducted epidemiologic studies, and participated in community outreach during the Flint emergency response.

Public health and emergency management officials rely on CDC’s experts and its rapid needs assessment toolkit—Community Assessment for Public Health Emergency Response (CASPER) — to quickly prioritize resources in response to a disaster. In FY 2016, CDC conducted two CASPERs and provided technical assistance on 13 others. In total, over 450 public health staff were trained on the CASPER methodology. CDC’s Environmental Health Training in Emergency Response courses teach state and local officials how to restore clean drinking water, dispose of sewage properly, ensure food is protected from unsafe environmental conditions, and prevent the spread of diseases after disasters.

In FY 2019, CDC will continue to respond to environmental health emergencies, address environmental causes of foodborne illness outbreaks, provide training and guidance for the nation’s environmental health workforce, and provide expertise on radiation and health.

Safe Water

Clean and safe drinking water is necessary to sustain human health. More than 319 million adults and children in the United States rely on our nation's water supply for drinking, recreation, sanitation, and hygiene. Environmental contamination and waterborne illness occur naturally as well as through industrial processes and accidents; water system failure; and changing environmental conditions, including extreme weather events such as storms and floods.

It is estimated that 45 million Americans use drinking water sources that are not monitored for contaminants and those in rural or tribal communities are particularly at risk. CDC's Safe Water program helps protect public health by decreasing environmental threats and reducing exposures to waterborne contaminants in water systems. The Safe Water program provides expertise with an environmental health focus to state, local, tribal, and territorial health officials to address or eliminate environmental threats to water systems and reduce exposures to waterborne contaminants. In FY 2017, CDC estimated contaminant levels in well water; assessed the disease and economic burden of exposure to arsenic in private wells; and evaluated the effectiveness of interventions to prevent harmful exposures related to unmonitored water sources.

CDC directly funds 19 (14 state and five county) health departments through a five-year Safe Water cooperative agreement. These cooperative agreements fund recipients to identify and address drinking water program performance gaps, improve program efficiency and effectiveness, and identify and reduce exposures to contaminated drinking water. These efforts include identifying at-risk water systems with elevated levels of chemical, radiological, and biological contaminants (e.g., arsenic, uranium, nitrates, and E. coli). In FY 2017, CDC grantees sampled over 2,400 wells and found that approximately 20% of the wells had contaminated water considered unsafe to drink.

CDC works with communities to examine the impact of exposure to Per- and Polyfluoroalkyl Substances (PFAS), which are a large group of man-made chemicals. CDC also developed the PFAS Exposure Assessment Technical Tools to help state and local health agencies accurately assess exposures to PFAS in their communities. Most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used. Over the last decade, interest in PFAS has been growing. CDC/ATSDR and our partners in state health departments are investigating exposure to PFAS at a number of sites.

Harmful algal blooms (HABs), the rapid growth of algae that produce toxins and can cause a variety of illnesses in people and animals, are becoming more frequent. CDC provides emergency response and scientific services to support state and local officials dealing with HABs. Overall, water-related illness, such as Legionnaire's disease, results in an estimated 40,000 hospitalizations and $970 million in healthcare costs each year.[128]

Over 65% of documented waterborne disease outbreaks are caused by Legionella bacteria. As a result, CDC has increased its focus on the prevention of Legionella outbreaks. CDC's Safe Water program has been integral to CDC's prevention and response activities. In FY 2017, CDC responded to outbreaks in Washington, D.C., California, Texas, Georgia, and Illinois. In FY 2016, CDC responded to outbreaks in New York City, Illinois, Ohio, and Texas. CDC also published guidance and tools for the environmental prevention of Legionella, including a Vital Signs report on "Legionnaires' Disease: Use of water management programs in buildings to help prevent outbreaks."

In FY 2019, CDC will continue to support state, territorial, local, and tribal governments to protect their citizens from waterborne contamination and illness, including prevention and response to Legionellosis outbreaks. CDC will also continue to prioritize efforts to keep small drinking water systems free from contamination.

[128] Collier, SA et al. 2012. "Direct healthcare costs of selected diseases primarily or partially transmitted by water," Epidemiol. Infect. 140: 2003-2013.

Safe Water Grants[1]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	19	19	19
- New Awards	0	0	0
- Continuing Awards	19	19	19
Average Award	$0.130	$0.130	$0.130
Range of Awards	$0.100–$0.134	$0.100–$0.134	$0.100–$0.134
Total Awards	$2.455	$2.455	$2.455

[1]These funds are not awarded by formula.

Food Safety

Every year, 48 million Americans get sick from foodborne diseases, and 3,000 people die. The United States spends approximately $78 billion per year on costs (healthcare, workplace, and other) related to foodborne illnesses[129]. Environmental factors are responsible for many of these foodborne illnesses, particularly in restaurants, where two-thirds of these outbreaks begin. To prevent foodborne illness outbreaks before they start, CDC investigates environmental contributors to foodborne disease and outbreaks; collects data; develops a well-trained environmental health workforce; and provides technical assistance and training to federal partners, states, communities, tribes, and territories to better understand environmental causes of foodborne illness outbreaks and how to address and prevent them. NCEH is focused on the environmental contributors to foodborne disease and outbreaks, including how a harmful agent makes its way into the environment and reaches a susceptible host in concentrations high enough to cause illness. NCEH staff and programs provide environmental health expertise to NCEZID and other internal and external partners.

CDC collects and translates high-quality surveillance data through the National Environmental Assessment Reporting System (NEARS). NEARS represents the only national effort to systematically collect, analyze, interpret, and disseminate environmental data to prevent outbreaks by improving practices at the state and local level.

CDC supports state and local health departments to investigate and address the environmental causes of foodborne disease through the Environmental Health Specialists Network cooperative agreements.

State and local health departments participating in CDC's Environmental Health Specialists Network are better equipped to identify and address the root causes of foodborne illness such as unsafe food handling practices, ill restaurant workers, and a lack of certified kitchen managers in restaurants. In FY 2019, CDC will continue efforts to promote best practices and conduct trainings to ensure food safety in retail establishments at a reduced scope.

[129] Scharff, R. (2012). Economic burden from health losses due to foodborne illness in the United States. Journal of Food Protection, 75(1), 123–131.

State Table: Environmental Health Funding

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate[1]	FY 2019 +/- FY 2018
Alabama	$0	$0	$0	$0
Alaska	$248,220	$248,220	$0	($248,220)
Arizona	$596,181	$382,468	$382,468	$0
Arkansas	$0	$0	$0	$0
California	$4,104,594	$2,857,168	$2,857,168	$0
Colorado	$1,528,130	$1,228,130	$1,228,130	$0
Connecticut	$1,752,847	$1,332,847	$1,332,847	$0
Delaware	$102,113	$102,113	$102,113	$0
District of Columbia	$3,100,863	$3,100,863	$3,100,863	$0
Florida	$2,459,307	$1,425,594	$1,061,551	($364,043)
Georgia	$1,743,587	$1,623,587	$1,623,587	$0
Hawaii	$881,177	$761,177	$399,221	($361,956)
Idaho	$0	$0	$0	$0
Illinois	$1,701,319	$1,367,606	$1,367,606	$0
Indiana	$957,733	$837,733	$724,891	($112,842)
Iowa	$1,033,325	$733,325	$385,505	($347,820)
Kansas	$639,753	$339,753	$339,753	$0
Kentucky	$857,006	$557,006	$557,006	$0
Louisiana	$1,619,452	$1,319,452	$1,319,452	$0
Maine	$1,766,971	$1,133,258	$728,573	($404,685)
Maryland	$2,410,824	$1,897,111	$1,897,111	$0
Massachusetts	$2,965,995	$2,332,282	$2,332,282	$0
Michigan	$2,028,194	$1,394,481	$1,394,481	$0
Minnesota	$2,354,141	$1,506,715	$1,506,715	$0
Mississippi	$659,703	$539,703	$539,703	$0
Missouri	$1,852,597	$1,432,597	$1,432,597	$0
Montana	$475,407	$355,407	$355,407	$0
Nebraska	$401,200	$401,200	$9,405	($391,795)
Nevada	$654,414	$654,414	$385,664	($268,750)
New Hampshire	$2,999,774	$1,966,061	$1,966,061	$0
New Jersey	$1,988,534	$1,688,534	$1,688,534	$0
New Mexico	$1,956,351	$1,536,351	$1,536,351	$0
New York	$5,933,701	$4,386,275	$4,386,275	$0
North Carolina	$1,000,891	$787,178	$787,178	$0
North Dakota	$0	$0	$0	$0
Ohio	$1,134,429	$1,014,429	$1,014,429	$0
Oklahoma	$271,204	$271,204	$271,204	$0
Oregon	$2,084,510	$1,664,510	$1,664,510	$0
Pennsylvania	$2,153,076	$1,733,076	$1,416,647	($316,429)
Rhode Island	$551,121	$217,408	$217,408	$0
South Carolina	$1,580,158	$1,280,158	$985,310	($294,848)
South Dakota	$664,833	$664,833	$664,833	$0
Tennessee	$564,182	$564,182	$564,182	$0
Texas	$1,180,847	$1,180,847	$549,412	($631,435)
Utah	$2,443,222	$2,023,222	$1,916,370	($106,852)
Vermont	$1,999,760	$1,366,047	$1,366,047	$0
Virginia	$883,432	$883,432	$883,432	$0
Washington	$1,385,636	$1,085,636	$939,987	($145,649)
West Virginia	$327,790	$327,790	$327,790	$0
Wisconsin	$2,325,176	$1,691,463	$1,691,463	$0

	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate[1]	FY 2019 +/- FY 2018
Wyoming	$0	$0	$0	$0
Territories	$0	$0	$0	$0
American Samoa	$0	$0	$0	$0
Guam	$0	$0	$0	$0
Marshall Islands	$0	$0	$0	$0
Micronesia	$0	$0	$0	$0
Northern Marianas	$0	$0	$0	$0
Puerto Rico	$0	$0	$0	$0
Palau	$0	$0	$0	$0
Virgin Islands	$0	$0	$0	$0
Subtotal, States	**$72,323,680**	**$56,196,846**	**$52,201,522**	**($3,995,324)**
Subtotal, Territories	**$0**	**$0**	**$0**	**$0**
Total	**$72,323,680**	**$56,196,846**	**$52,201,522**	**($3,995,324)**

[1]This estimated state funding table shows a decrease in funding for 13 states from 2018 to 2019 due to anticipated changes in funding from the Childhood Lead Poisoning Prevention Program. The Lead Program received 2-year (FY 2017 and FY 2018) supplemental funding as part of the Water Infrastructure Improvements for the Nation (WIIN) Act passed in December 2016. The WIIN funds allowed these 13 states to receive funding for FY 2017 and FY 2018. Essentially, the FY 2019 estimates reflected for these 13 states return funding to the base funding levels awarded prior to the enactment of the supplemental.

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INJURY PREVENTION AND CONTROL

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$285.506	$284.116	$266.309	-$17.807
FTEs	296	296	296	0
Intentional Injury	$97.501	$97.066	$97.730	+$0.664
NVDRS	$15.963	$15.891	$15.970	+$0.079
Unintentional Injury	$8.779	$8.740	$6.737	-$2.003
Elderly Falls (non-add)	$2.045	$2.036	$0.000	-$2.036
Injury Prevention Activities	$28.882	$28.753	$20.293	-$8.460
Opioid Abuse and Overdose Prevention[1,2]	$125.402	$124.726	$125.579	+$0.853
Injury Control Research Centers	$8.979	$8.939	$0.000	-$8.939

[1] FY 2017 Final amount for Prescription Drug Overdose and Illicit Opioid Risk Use Factors are comparably adjusted to reflect combined single line.

[2] The FY 2019 President's Budget Request includes $10.0 billion in new resources invested across HHS for a variety of new and expanded efforts to fight the opioid crisis and address mental illness. As part of this effort, the FY 2019 President's Budget Request would initially allocate $175 million of that funding for activities in CDC. That funding is not reflected in this table.

Enabling Legislation Citation: PHSA Title II §§ 214, 215, 301, 304, 307, 308, 310, 311, 317, 319, 319D*, 327, 352, 391*, 392*, 393*, 393A*, 393B*, 393C*, 393D*, 394*, 394A*, 399P*, 1102; Title XVII*, Bayh-Dole Act of 1980 (P.L. 96-517); Safety of Seniors Act of 2007 (P.L. 110-202); Traumatic Brain Injury Reauthorization Act of 2014 (P.L. 113-196); Family Violence Prevention and Services Act §§ 303 (42 U.S.C. 10403)*, 314 (42 U.S.C. 10414)*

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural; Competitive Cooperative Agreements/Grants, including Formula Grants; and Competitive Contracts

CDC is the nation's leading authority on violence and injury prevention. CDC is committed to saving lives, protecting people, and lowering the social and economic costs of violence and injuries through our surveillance, scientific expertise, and service to the nation. CDC collects data to identify problems and monitor progress, uses research to understand what works, and promotes evidence-based strategies to inform real-world solutions. Our goal is to offer individuals, communities, and states timely and accurate information, funding, and useful resources to keep people safe where they live, work, play, and learn.

By providing for the common defense of the country against injury and violence-related health threats, CDC works to prevent or reduce injuries in the United States. We do this by: conducting research to understand what works; monitoring injuries and violent deaths to inform prevention; and providing state and local partners with direct funding and scientific expertise.

INJURY PREVENTION AND CONTROL

BY THE NUMBERS…

- NCIPC's *Guideline for Prescribing Opioids for Chronic Pain* received over 1.8 million page views, at least 22 medical society statements of support, over 30,000 downloads of the *Guideline* provider checklist, over 23,000 downloads of the *Guideline* mobile app, and 3,600 continuing medical education credits earned.
- CDC's Essentials for Childhood (EfC) States increased the percent of Community-Based Child Abuse Prevention dollars invested from 24% to 52%.
- NCIPC has educated over 3 million professionals on the identification and consequences of youth sports concussions.
- NCIPC'S comprehensive teen dating violence prevention model, Dating Matters: Strategies to Promote Healthy Teen Relationship, trained over 40,000 students and adults in in four major US cities on teen dating violence prevention through this initiative.

References:
All information and calculations are from CDC program data.

Injury Prevention and Control Funding History	
Fiscal Year	Dollars (in millions)
2015	$170.447
2016	$236.059
2017 Final	$285.506
2018 Annualized CR	$284.116
2019 President's Budget	$266.309

CDC's FY 2019 request of **$266,309,000** for Injury Prevention and Control is $17,807,373 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions and eliminations of the Elderly Falls program and Injury Control Research Centers from the FY 2018 President's Budget Request. Additionally, the FY 2019 President's Budget Request includes $10.0 billion in new resources invested across HHS for a variety of new and expanded efforts to fight the opioid crisis and address mental illness. As part of this effort, the FY 2019 President's Budget Request would initially allocate $175,000,000 to expand CDC efforts to address the opioid epidemic.

Intentional Injury Prevention Budget Request

Violence is a significant problem in the United States that affects people in all stages of life, and the effects ripple through the entire country. In 2016, 19,362 people were victims of homicide, and 44,965 people took their own life. The number of violent deaths tells only part of the story. Many more survive violence and are left with permanent physical and emotional scars. Violence also erodes communities by reducing productivity, decreasing property values, and disrupting social services. CDC's Intentional Injury Prevention program focuses on primary prevention of domestic violence, sexual violence, child abuse and neglect, youth violence, and suicide. Using a public health approach, CDC provides national leadership in preventing violence and its health consequences by collecting and disseminating data, implementing and evaluating prevention programs through state and local public health agencies, universities, and non-governmental organizations, developing tools and resources to inform their practice.

To support states and communities in implementing prevention activities that work, CDC developed a suite of resources, called technical packages, on its major violence prevention topics. These technical packages are collections of strategies that represent the best available evidence to prevent or reduce public health problems and are valuable tools for communities working to prevent violence. CDC has disseminated over 35,000 copies of the technical packages to states and territories since April 2016. States and communities are using these tools to enhance prevention efforts. In Minnesota, for example, the state health department compared their programs to CDC's Sexual Violence Prevention technical package and found that they did not have programs that provided opportunities for women and girls, a proven strategy to help prevent sexual violence. Minnesota is now working to address this gap.

Budget Request

CDC's FY 2019 request of **$97,730,000** for Intentional Injury Prevention is $663,684 above the FY 2018 Annualized CR level.

Domestic Violence and Sexual Violence Surveillance, Research, and Prevention

The Rape Prevention and Education (RPE) program provides funding to state health departments in all 50 states, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands, and the Commonwealth of Northern Mariana Islands to support state and community efforts to prevent sexual violence using the best available evidence. Grantees use CDC funding to implement statewide sexual violence prevention plans, implement and evaluate prevention programs, and address local sexual violence prevention needs.

CDC has supported the rigorous evaluation of sexual violence prevention programs and increased capacity of state health departments by establishing a data management system, encouraging adoption of proven prevention approaches, and assisting states and territories to measure and evaluate progress. Five RPE funded state programs (New York, North Dakota, Colorado, North Carolina, and Michigan) are currently working with academic institutions on research studies to scientifically evaluate sexual violence prevention programs and increase what we know works in prevention.

CDC is supporting robust program evaluation in RPE state programs leading to improved performance monitoring, enhanced data collection, and improved measurement of RPE program's effects. In FY 2016-2017, CDC worked with 12 pilot states to identify new data sources, prioritize and track specific risk and protective factors, and identify indicators of sexual violence outcomes. For example, Massachusetts, New Jersey, and Connecticut have added questions to their Behavioral Risk Factor Surveillance System, or other state surveys, to track sexual violence risk and protective factors for the first time. CDC is sharing lessons learned from these states across the entire RPE program to enhance capacity nationwide and in FY 2018 supporting all 55 RPE programs to enhance evaluation capacity.

Rape Prevention and Education Grants[1,2]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	55	55	55
- New Awards	0	0	0
- Continuing Awards	55	55	55
Average Award	$0.621	$0.578	$0.578
Range of Awards	$0.035-$3.236	$0.044-$3.086	$0.044-$3.086
Total Awards	$34.144	$34.144	$34.144

[1]These funds are awarded by formula.

[2]A new Notice of Funding Opportunity will be issued in FY 2019

CDC's domestic violence and sexual violence activities include data collection to understand the burden of intimate partner and sexual violence. CDC supports the National Intimate Partner and Sexual Violence Survey (NISVS), the first ongoing survey dedicated to describing, monitoring, and providing national and state level data on experiences of intimate partner violence, sexual violence, and stalking among adults in the U.S. NISVS data are collected and disseminated to assist state health departments and our other national and state partners in their efforts to develop practices that will prevent sexual violence, intimate partner violence, stalking, and related injuries and health consequences.

Domestic Violence Community Projects

CDC funds State Domestic Violence Coalitions to implement and evaluate intimate partner violence (IPV) prevention strategies in communities across 10 states. In Indiana, the state coalition worked with local government and community partners to increase residents' sense of safety, neighborhood pride, and connectedness by creating safe spaces in neighborhood parks, developing opportunities for engagement and ownership among neighbors, and promoting crime reduction in partnership with police. As a result, 85% of surveyed residents in the Garfield neighborhood in Indianapolis reported a sense of safety and pride in their neighborhood.

In 2018, CDC will begin a new 5-year cooperative agreement, Domestic Violence Prevention Enhancements and Leadership Through Alliances (DELTA) Impact. DELTA Impact will fund State Domestic Violence Coalitions to implement proven IPV prevention approaches, which are provided in CDC's intimate partner and prevention technical package, and evaluate the impact of these approaches in different communities.

Child Abuse and Neglect Surveillance, Research, and Prevention

CDC works to create safe, stable, nurturing relationships and environments for families. One in seven children experienced abuse or neglect in the last year, according to the National Survey of Children's Exposure to Violence. The total lifetime estimated financial costs associated with just one year of confirmed cases of child abuse and neglect are approximately $124 billion, which includes $25 billion in health care costs.

CDC implements the Essentials for Childhood (EfC) framework to address child abuse and neglect prevention. In FY 2018, CDC's EfC state initiative will fund five states (California, Colorado, Massachusetts, North Carolina, and Washington) to implement CDC's comprehensive child abuse and neglect prevention programs to improve child well-being. Additionally, over 30 unfunded states have elected to participate in Essentials for Childhood, due to high interest in the initiative. EfC state health departments are seen as leaders in prevention and are bringing together key partners in government, communities, business, and philanthropy to develop a shared state agenda that is being incorporated across state agencies and community based organizations. EfC states have

leveraged partnerships and funding opportunities to extend evidence-based programs. For example, Colorado extended Nurse-Family Partnership to all 64 counties in the state.

The Adverse Childhood Experiences (ACE) Study is one of the largest investigations ever conducted to assess associations between ACEs (such as witnessing domestic violence in the home or being the victim of child abuse) with lifelong health and well-being. CDC continues to analyze incoming ACE data to better understand links between ACEs and health across the lifespan, publish findings to help inform prevention efforts, and work with states to collect data. CDC and the Administration on Children, Youth, and Families, Office on Child Abuse and Neglect collaborate through an interagency agreement to support ACE data collection and analysis efforts and to better disseminate the findings, while creating a forum for collaboration between the two agencies. Additionally, CDC is working with Association of American Indian Physicians to develop and tailor prevention messages for American Indian/Alaska Native (AI/AN) populations on ACEs and to understand cultural factors that may buffer poor health outcomes. CDC and partners are developing resources specifically for AI/AN communities through this project.

Youth Violence and Teen Dating Violence Prevention

CDC supports five communities through their respective local health departments (Baltimore City Health Department, Houston Health Department, Minneapolis Health Department, Monterey County Health Department, and Multnomah County Health Department) to prevent multiple forms of violence affecting adolescents, including peer-to-peer and teen dating violence. CDC also funds five National Centers of Excellence in Youth Violence Prevention whose research shows that prevention is possible. For example, the Virginia Commonwealth University's (VCU) Clark-Hill Institute for Positive Youth Development has brought together researchers, community leaders, schools, residents, and state and local partners in Richmond. VCU Clark-Hill Institute and its partners coordinated and implemented a set of school-based and family-focused programs. They demonstrated that youth in their program had a 13% lower risk of youth violence based on police reports.

In FY 2019, CDC will:

- Collaborate with all 50 states, District of Columbia, and four territories to implement sexual violence prevention strategies through the Rape Prevention and Education Program (RPE). CDC will work with grantees to enhance evaluation of RPE program activities, and in FY 2019, all RPE grantees will be required to comprehensively evaluate efforts to reduce sexual violence.
- Collect the most comprehensive national- and state-level data on intimate partner violence, sexual violence and stalking victimization in the United States through the National Intimate Partner and Sexual Violence Survey.
- Continue to support State Domestic Violence Coalitions implementing IPV prevention strategies through the DELTA Impact program. State coalitions and community partners will address common factors that can result in, or protect against, IPV perpetration and victimization.
- Work with high-risk communities across the country to implement evidence-informed youth violence prevention strategies through the National Centers of Excellence in Youth Violence Prevention and technical assistance to local health departments working on youth violence prevention.
- Fund and collaborate with a new cohort of states to prevent child abuse and neglect and other adverse childhood experiences through the Essentials for Childhood initiative.
- Work with high-risk communities across the country to implement evidence-informed youth violence prevention strategies through the National Centers of Excellence in Youth Violence Prevention and technical assistance to local health departments working on youth violence prevention.
- Fund five local health departments to implement programs to address and prevent factors that may lead to both teen dating violence and youth violence.
- Help states understand what works to prevent violence, and implement prevention efforts, using CDC's technical packages.

National Violent Death Reporting System Budget Request

The National Violent Death Reporting System (NVDRS) is critical to the nation's efforts to prevent violence. NVDRS is the only state-based surveillance system that pools information from multiple data sources into a usable, anonymous database in order to provide a complete picture on the circumstances of all types of violent deaths – including homicide, suicide (including opioid-related suicides), and child abuse and neglect fatalities. It collects the most comprehensive data in the United States, pulling from 40 states, Puerto Rico, and the District of Columbia. NVDRS provides states and communities with a better understanding of violent deaths to guide local decisions about preventing violence and tracking progress over time. For example, a recent examination in Colorado revealed that first responders who died by suicide were more likely to also be veterans. Colorado is working to understand the needs veterans may have in high stress occupations.

Budget Request

CDC's FY 2019 request of **$15,970,000** for NVDRS is $78,656 above the FY 2018 Annualized CR level.

In FY 2019, CDC will:

- Support 40 states, Washington, D.C., and Puerto Rico to collect data as part of the NVDRS system and provide technical assistance to help grantees implement the system, monitor and report data, and use these data to inform prevention efforts.
- Work to link NVDRS data with other data sources, such as Department of Defense Suicide Event Reports and Veteran suicide data, child fatality review reports, and adult protective services reports.
- Use NVDRS data to enhance understanding of the opioid crisis. Analysis of NVDRS data, including toxicology results, can help increase understanding of associations between opioids and violent death, such as suicide, and help to guide prevention strategies.
- Promote greater functionality and improve access to data. NVDRS data are available online to the general public through CDC's WISQARS (Web-based Injury Statistics Query and Reporting System), and through the NVDRS Restricted Access Database (for researchers).

National Violent Death Reporting System (NVDRS) Grants[1]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	41	41	41
- New Awards	0	0	0
- Continuing Awards	41	41	41
Average Award	$0.260	$0.260	$0.260
Range of Awards	$0.143-$0.531	$0.143-$0.531	$0.143-$0.531
Total Awards	$10.644	$10.644	

[1]Funds are being awarded by formula in FY 2017. Earlier awards were competitive.

Unintentional Injury Prevention Budget Request

Unintentional injuries are the leading cause of death for individuals 1-44 years of age in the U.S. and are projected to cost more than $129 billion annually in medical costs. CDC's Unintentional Injury Prevention program promotes safety by tracking unintentional injuries to identify opportunities for prevention and by developing and evaluating recommendations for effective interventions. Unintentional injuries include issues such as elderly falls, motor vehicle crashes, and traumatic brain injuries (TBI). Interventions in these areas are implemented at the state level through various mechanisms including CDC's Core State Violence and Injury Prevention Program (Core SVIPP).

Budget Request

CDC's FY 2019 request of **$6,737,000** for Unintentional Injury Prevention is $2,003,239 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions and elimination of the Elderly Falls program from the FY 2018 President's Budget Request.

Each year, traumatic brain injuries contribute to a substantial number of deaths and disabilities among Americans. CDC's public health research and programs work to prevent TBI and help people better recognize, respond, and recover if a traumatic brain injury occurs. CDC has a unique role in providing training through its HEADS UP initiative to coaches, families, and athletes in order to identify and prevent TBIs. CDC provides support to enhance state surveillance, evaluate solutions, identify best practices for prevention, and improve treatment of TBIs in partnership with healthcare providers. CDC is developing mild TBI (mTBI) clinical guidelines on the diagnosis and management of mTBI within the pediatric population, filling a critical gap to address the lack of clinical guidelines for healthcare providers on this issue. Further, CDC will be pilot testing a methodology and case definition that can form the foundation of a potential national-level concussion surveillance system. Such a system would provide the first comprehensive estimates of TBI (and youth sports concussion) in the U.S. and identify the leading causes of concussion so that efforts can be taken to prevent TBIs from occurring in the first place.

In FY 2019, CDC's TBI program will:

- Continue to support essential state-based TBI prevention efforts related to surveillance and program implementation through the Core SVIPP program.
- Release, disseminate, and encourage uptake of CDC's pediatric mTBI guideline to assist in proper diagnosis and management of mTBIs among children and adolescents.
- Continue to support HEADS UP via educational initiatives that share the common goals of protecting kids and teens by raising awareness and informing action to improve prevention, recognition, and response to concussion and other serious brain injuries.

The FY 2019 budget request eliminates funding for the Elderly Falls program. Other agencies across the U.S. government and other key stakeholders invest in research and prevention programs to address Elderly Falls, and the materials that CDC has developed to support clinicians who treat older patients at risk for falls will remain available.

Injury Prevention Activities Budget Request

Violence and injuries affect everyone, regardless of sex, race, or economic status. CDC works to prevent injuries and violence through a host of programs spanning surveillance, development and evaluation of recommendations, and implementation of effective strategies. These activities are high priority and offer flexibility to address high burden injury and violence areas as needs arise.

Budget Request

CDC's FY 2019 request of **$20,293,000** for Injury Prevention Activities is $8,460,401 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reduction from the FY 2018 President's Budget Request.

At this funding level, CDC will conduct prevention activities in areas of greatest need, including high burden topics such as suicide and motor vehicle-related injury prevention. The Injury Prevention Activities budget line also supports cross-cutting programs, such as the Core State Violence and Injury Prevention Program (Core SVIPP).

High Burden Topics

CDC plays a unique role in preventing motor vehicle-related injuries and death, by working with state health departments to support effective interventions, data collection, evaluation, and provides guidance on effective programs such as alcohol ignition interlocks and graduated driver's licensing systems for teen drivers. CDC also focuses on targeted interventions to reduce deaths and injuries among certain populations, including children, teens, older adults, and American Indians and Alaska Natives (AI/AN). In 2016, CDC published a Tribal Motor Vehicle Injury Prevention Best Practices Guide which provides a summary of the burden of motor vehicle crash injury and death within the AI/AN community. The Guide offers recommended strategies to increase seat belt and child safety seat use, as well as those to reduce alcohol-impaired driving.

CDC also provides national leadership in understanding who dies by suicide and why, along with how to promote protective factors to stop suicide before it occurs. CDC data are used by agencies and organizations such as the Departments of Defense and Veteran Affairs to plan suicide prevention activities. The Connectedness study examined whether linking at-risk youth with a natural mentor and a community mentor is effective at reducing risk for suicide. Self-report measures of social connectedness, community connectedness, thwarted belongingness, depression, self-esteem, and suicidal ideation was assessed after 6 and 16 months. In 6 months, the interventional group had a significant increase in social connectedness, and in 16 months, the intervention group had higher self-esteem. Increased social connectedness and self-esteem are factors that could help prevent suicide. In Tennessee, the Core SVIPP program is working with partners to implement and evaluate Checkpoints, a program focused on teen driving safety. Preliminary results show that there has been significant improvement in parent understanding of Tennessee's existing Graduated Driver Licensing requirements, including policies such as driving with less than one passenger, driving restrictions between 11 P.M. and 6 A.M., and the seatbelt law for all occupants in the car that are under 18 years old.

Supporting Cross-Cutting Programs

CDC's Core State Violence and Injury Prevention Program (Core SVIPP) funds 23 states to strengthen injury surveillance programs and implement, evaluate, and disseminate effective violence and injury prevention interventions. This funding provides critical capacity in state health departments to address issues of injury and violence. Currently, states receive base program funding to focus on four priority areas: motor vehicle injury prevention, youth sports concussion/traumatic brain injury (TBI), child abuse and neglect, and sexual violence/intimate partner violence. These topics have shared risk and protective factors across the different mechanisms of injury. Core SVIPP grantees are able to leverage their expertise to identify and respond to emerging and/or high burden issues. For example, the Nebraska Core SVIPP program provided funding and

support for TBI recognition training for staff at four domestic violence shelters across the state, revealing that over 60% screened positive for a TBI. Partners were able to leverage these findings to expand this work to further improve recognition and management of brain injuries in victims of domestic violence.

In FY 2019, CDC's Injury Prevention Activities will:

- Assist states with the development and implementation of programs to address motor vehicle-related injuries in the key areas listed above. Also, CDC will focus on improving the safe mobility of older adults by working to better understand their transition from driving to non-driving adults.
- Amplify data linkage for non-fatal motor vehicle crash injury surveillance in partnership with public health entities at the state level.
    - CDC is developing a data linkage guide and testing data linkage software to help states either begin linking or improve linkage of existing data (e.g., hospital admissions and discharges, EMS, toxicology, police crash reports, etc.).
    - Linked data will help states and the U.S. learn more about the role alcohol, drugs, restraint use, speed, and distraction play in non-fatal car crashes, which injure more than 2.4 million people every year. Linked data give us the information on what happened before, during, and after a crash including the medical outcomes and associated costs.
- Support efforts to prevent suicide by conducting surveillance, research, and developing evidence-based strategies. CDC will continue to support fatal and non-fatal surveillance systems for self-directed violence, including collection of data at the national, state, and local levels, which provides information for decision makers. These important data and research will help CDC determine the effectiveness of strategies to prevent suicidal behavior and expand the number of prevention activities.
- Provide critical support to Core SVIPP states through funding as well as tools for implementation and scientific evidence on best practices. Core SVIPP states will continue to implement and evaluate injury and violence prevention strategies, lead regional networks to enhance capacity across all states, and support improved injury and violence surveillance.

Core State Violence and Injury Prevention Program Grants[1,2]

(dollars in millions)	**FY 2017 Final**	**FY 2018 Annualized CR**	**FY 2019 President's Budget**
Number of Awards	23	23	23
- New Awards	23	0	0
- Continuing Awards	0	23	23
Average Award	$0.292	$0.292	$0.292
Range of Awards	$0.248–$0.475	$0.248-$0.475	$0.248-$0.475
Total Awards	$6.723	$6.723	$6.723

[1]All 23 Core SVIPP grantees receive base funding. Select states are funded for expanded components above their base funding.

[2]These funds are not awarded by formula.

Opioid Abuse and Overdose Prevention Budget Request

The United States remains in the midst of an epidemic of opioid overdose deaths involving both prescription opioids and illicit opioids like heroin and illicitly-manufactured fentanyl. More than 63,000 Americans died from drug overdoses in 2016 alone. On average, 115 Americans die every day from an opioid overdose. Deaths are only part of the problem: for each death involving prescription opioids, hundreds of people abuse or misuse these drugs. The Council of Economic Advisers estimated the cost of the opioid crisis to be $504 billion in 2015. Over 350,000 people have died from overdoses involving opioids—prescription or illicit—in the United States from 1999 through 2016. CDC plays a critical role in opioid overdose prevention by strengthening surveillance, helping providers improve their prescribing practices, and working to identify and scale up effective interventions. CDC's funding initiatives equip state health departments with resources to combat the epidemic. CDC uses data to drive action to prevent and address opioid overdoses as well as other negative health effects of this epidemic.

CDC has unique scientific expertise to prevent people from getting addicted to opioids in the first place by improving opioid prescribing. As the epidemic has evolved, CDC has tailored its response. In response to the rise in deaths attributable to illicit opioids, CDC is strengthening surveillance and response to inform and engage public safety and substance use treatment efforts addressing illicit opioids. In addition, CDC has initiated efforts at the community and local levels to empower consumers to make safe choices.

Budget Request

CDC's FY 2019 request of **$125,579,000** for Opioid Abuse and Overdose Prevention is $852,807 above the FY 2018 Annualized CR level. This request combines the Prescription Drug Overdose and Illicit Opioids Use Risk Factors budget lines. A consolidated budget line allows CDC to best direct resources to the rapidly changing epidemic related to both prescription and illicit opioids. The FY 2019 President's Budget Request includes $10.0 billion in new resources invested across HHS for a variety of new and expanded efforts to fight the opioid crisis and address mental illness. As part of this effort, the FY 2019 President's Budget Request would initially allocate $175,000,000 to expand CDC efforts to address the opioid epidemic.

CDC is developing new funding opportunities in FY 2019 which will afford both CDC and grantees the flexibility to scale up surveillance and prevention activities to address the greatest needs. In addition, a consolidated budget line allows CDC to best direct resources to the rapidly changing epidemic related to both prescription and illicit opioid overdoses and support critical public health activities in the states. Funding states and communities to do what we know works and using other emerging evidence will aid in the response to the specific needs, trends, and circumstances related to this public health crisis.

Additional Opioids Allocation

The FY 2019 President's Budget Request includes $10.0 billion in new resources invested across HHS for a variety of new and expanded efforts to fight the opioid crisis and address mental illness. As part of this effort, the FY 2019 President's Budget Request would initially allocate $175,000,000 of that funding for activities in CDC.

- Prevention - to scale up programmatic prevention initiatives across all 50 states and Washington, D.C. Building upon the strong foundation of work resulting from recent CDC investments made, this increase will provide critical resources needed to promote the use of PDMP data to inform action, amplify messaging within states to educate about the risks associated with opioids, strengthen prevention activities at the community level for a more customized response, and target populations of particular need, including rural and tribal communities. Funds also will be used to conduct a rigorous evaluation to increase our knowledge of effective interventions that can be applied throughout the United States.

- Surveillance - to strengthen surveillance activities across all 50 states and Washington, D.C. CDC will advance its understanding of the opioid overdose epidemic by increasing the timeliness and improving the quality of morbidity and mortality data. CDC will move science to action by partnering with states and localities to implement innovative strategies, including initiating surveillance activities to promote linkage to treatment for individuals with an opioid use disorder and linking Prescription Drug Monitoring Programs (PDMP) data to mortality data to inform prevention strategies. Improved surveillance in every corner of the United States will allow for a more targeted and focused response to changes in the epidemic.

The Administration's Strategy

CDC's activities to address the opioid overdose epidemic support The Administration's Strategy, which brings together prevention, treatment, recovery, law enforcement, interdiction, and source-country efforts to address the continuum of challenges facing this country as a result of drug use. The strategy involves multiple tactics to break the cycle of drug abuse and death, and CDC's role in this strategy is to prevent opioid-related harms and overdose deaths by:

- Using data to monitor emerging trends and direct prevention activities;
- Strengthening state, local, and tribal capacity to respond to the epidemic and prevent opioid-related harms;
- Working with providers, health systems, and payers to reduce unsafe exposure to opioids and treat addiction;
- Coordinating with public safety and community-based partners to rapidly identify overdose threats, reverse overdoses, link people to effective treatment, and reduce harms associated with illicit opioids; and
- Increasing public awareness about the risks of opioids.

State Support through Overdose Prevention in States (OPIS) Initiatives

Beginning in FY 2015, CDC launched the Overdose Prevention in States (OPIS) effort as the agency's approach to provide support to states as they respond to the epidemic within their borders. The first program under the OPIS umbrella was the Prescription Drug Overdose: Prevention for States (PfS) program, which directed funds to states at the intersection of burden and readiness to implement overdose strategies. Following PfS was the launch of the Data Driven Prevention Initiative (DDPI), providing funds to additional states with particular attention to the needs of states that may not have been at the same level of readiness as their peers. Most recently, CDC funded states through the Enhanced State Opioid Overdose Surveillance (ESOOS) program to support efforts to improve surveillance of opioid overdoses that result in deaths or injuries. In alignment with increased appropriations received in subsequent years, the OPIS efforts have expanded to directly fund a total of 45 states and Washington, D.C.

Through OPIS, CDC equips state health departments with resources and technical support needed to scale up surveillance and advance preventive interventions. Examples of state support through PfS and DDPI include enhancing PDMP, which are electronic databases that track controlled substance prescriptions, as public health surveillance and clinical decision support tools, as well as improving health system and insurer practices to improve opioid prescribing.

For example, Ohio is working to integrate the Ohio Automated Rx Reporting System (OARRS) directly into electronic medical records and pharmacy dispensing systems across the state, allowing instant access for prescribers and pharmacists. Ohio has reached full data integration with Kroger as part of their integration with electronic health records. Every Kroger pharmacy in Ohio is now integrated and their queries are processed in real-time. In addition, CDC has sharpened its focus on response efforts specific to localities and communities within states, recognizing that there may be particular geographic areas that need targeted resources to quickly

address overdose outbreaks that may occur. As a part of its rapid response strategy, Rhode Island is convening a drug overdose death review team, which includes stakeholder from public health, first responders, and individual from the State Medical Examiner office. This team meets quarterly to review and discuss recent data to identify trends and create data alerts that will be shared with stakeholders and community organizations.

With support from CDC, states also have made strides in surveillance of opioid overdoses by increasing the timeliness of actionable fatal, non-fatal, and syndromic opioid overdose data. State activities include supporting an early warning system, in part through emergency department and emergency medical services data, to detect sharp increases or decreases in nonfatal opioid overdoses. Kentucky has used CDC funding to begin tracking heroin and opioid overdoses reported to emergency departments in near real-time, which can be used to quickly detect overdose outbreaks and mobilize localized response teams. Kentucky has conducted trainings with local health departments on how to use this data to respond to overdose outbreaks.

Other activities include collecting data on opioid overdose deaths and analyzing results from toxicology tests and death scene investigations to better understand the circumstances surrounding opioid-involved deaths and inform prevention strategies. Through this effort, funded states leverage the use of CDC's NVDRS platform to collect data on all unintentional or undetermined opioid overdose deaths under the State Unintentional Drug Overdose Reporting System (SUDORS) module. Data collected by SUDORS include valuable contextual information from death scene investigations, the route of administration, and associated risk factors. With increases in funding received in FY 2017 and in response to feedback received from states, CDC directed resources to support comprehensive toxicology testing within coroner and medical examiner offices within funded states.

Supportive Strategies to Augment State Efforts

Subsequent to the release of the CDC Guideline for Prescribing Opioids for Chronic Pain in March 2016, CDC developed a comprehensive suite of tools and resources to operationalize recommendations to change the culture of opioid prescribing. CDC has continued efforts in tailoring materials for implementation, including clinical continuing education. In addition, CDC has strengthened collaboration with external and federal partners for widespread implementation of guideline concordant care.

CDC piloted and launched a communications campaign to help equip states to better fight the opioid overdose epidemic. The Rx Awareness campaign tells the real stories of people whose lives were affected by opioid misuse and abuse. The campaign aims to increase awareness and knowledge among Americans about the risks of prescription opioids and deter inappropriate use. With the tagline, "It only takes a little to lose a lot," the Rx Awareness campaign uses testimonials to educate the public, focusing on the dangers of prescription opioids whether used for medical or non-medical purposes. In 2017, CDC funded ad placement in Kentucky, Ohio, New Mexico, and Massachusetts and plans to implement the campaign in states funded through CDC's Overdose Prevention in States effort. Funded states and the public have access to campaign materials, including out-of-home, radio, and digital platforms that feature videos, audio ads, social media ads, internet banners, Web graphics, billboards, and posters, which can be tagged for local use. The Rx Awareness launch was accompanied by a campaign implementation guide for states to support their use of the campaign materials.

Innovative Strategies on Illicit Opioids

CDC efforts in improving surveillance has shed light on the alarming increases in deaths attributable to illicit opioids. After experiencing an almost 500% increase in fentanyl-related unintentional overdose death, the Ohio Department of Health (ODoH) requested CDC's assistance through an Epidemiological Assistance (Epi-Aid). CDC worked with the ODoH to develop specific recommendations to enhance public health surveillance, target the public health response to high-burden counties and high risk groups, enhance and facilitate response to fentanyl-related overdoses by EMS and laypersons, and improve access to naloxone and addiction services.

CDC has also responded to the increase in illicit opioid-related deaths by establishing and strengthening collaboration with partners from other sectors, including public safety and substance abuse treatment. With support from the Office of the National Drug Control Policy, the Heroin Response Strategy (HRS) has emerged as an initiative designed to enhance collaboration across public health and public safety within ten High-Intensity Drug Trafficking Areas (HIDTAs). CDC plays a pivotal role in the implementation of the Heroin Response Strategy and its aims which include working with various local, state, and federal agencies to gather, analyze, and disseminate vital information about drug abuse with a focus on actionable intelligence, trend information, and best practices for developing evidence-based responses to the opioid epidemic within specific geographic areas. Through HRS, CDC is partnering with law enforcement in Georgia, which is included in the Atlanta/Carolinas HIDTA, by leveraging and analyzing public health data (specifically, de-identified PDMP data) to better inform where within the state to target opioid and heroin overdose prevention resources.

In FY 2019, CDC will:

- Continue state support to scale up surveillance and other prevention activities, in part by:
    - Improving reporting and analysis of morbidity and mortality data related to opioid overdoses within states to inform a public health response.
    - Applying expertise in tracking overdoses and linking data to identify individuals who have overdosed and connecting them to treatment and other services.
    - Maximizing capabilities and use of state-based PDMPs as a clinical decision-making and public health surveillance tool.
    - Targeting efforts for populations of particular need, including rural communities and federally recognized Tribes.
    - Sharpening the focus on local and community-level needs in the event that “hot spots” for overdose outbreaks are identified within states.
    - Promoting the Rx Awareness communications campaign in partnership with state public health entities to raise awareness and reduce stigma.
- Support the continued development and rollout of tools and materials to assist with implementation of guideline recommended care, along with the evaluation of implementation activities.
- Increase uptake among providers of the CDC Guideline to improve the prescribing of opioids and treatment of outside of active cancer treatment, palliative care, and end-of-life care.
- Continue to support and finalize the study of medication-assisted treatment and other types of treatment modalities.
- Continue to support the evaluation of the Substance Abuse and Mental Health Services Administration’s naloxone distribution program.
- Identify and scale up promising prevention practices in the nation's hospitals and health systems, including working to expand and evaluate coordinated care models for high-risk opioid patients to ensure they receive safe, effective treatment and implementing quality improvement strategies with the aim of improving opioid prescribing practices.

Prescription Drug Overdose Prevention for States and Data Driven Prevention Initiative State Grants[1,2]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	43	43	43
- New Awards	0	0	0
- Continuing Awards	43	43	43
Average Award	$1.420	$1.420	$1.420
Range of Awards	$0.290-$3.151	$0.290-$3.151	$0.290-$3.151
Total Awards	$72.154	$72.154	$72.154

[1]These funds are not awarded by formula.

[2]2017 includes combined base and supplemental funds for PfS and DDPI programs. The programs are mutually exclusive, meaning if a state is funded through PfS, they do not receive DDPI funds.

Enhanced State Surveillance of Opioid-Involved Morbidity and Mortality Grants[1,2]

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	33	33	33
- New Awards	21	21	0
- Continuing Awards	12	33	33
Average Award	$0.323	$0.323	$0.323
Range of Awards	$0.327-$0.877	$0.327-$0.877	$0.327-$0.877
Total Awards	$16.480	$16.480	$16.480

[1]These funds are not awarded by formula.

[2]Funded through the combined single line, Opioid Abuse and Overdose Prevention.

State Table: Core State Injury Program[1,2,3]

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$0	$0	$0	$0
Alaska	$0	$0	$0	$0
Arizona	$250,000	$250,000	$250,000	$0
Arkansas	$0	$0	$0	$0
California	$0	$0	$0	$0
Colorado	$475,000	$475,000	$475,000	$0
Connecticut	$0	$0	$0	$0
Delaware	$0	$0	$0	$0
Florida	$0	$0	$0	$0
Georgia	$249,999	$249,999	$249,999	$0
Hawaii	$250,000	$250,000	$250,000	$0
Idaho	$0	$0	$0	$0
Illinois	$249,989	$249,989	$249,989	$0
Indiana	$0	$0	$0	$0
Iowa	$0	$0	$0	$0
Kansas	$0	$0	$0	$0
Kentucky	$399,997	$399,997	$399,997	$0
Louisiana	$250,000	$250,000	$250,000	$0
Maine	$0	$0	$0	$0
Maryland	$475,000	$475,000	$475,000	$0
Massachusetts	$475,000	$475,000	$475,000	$0
Michigan	$250,000	$250,000	$250,000	$0
Minnesota	$248,384	$248,384	$248,384	$0
Mississippi	$0	$0	$0	$0
Missouri	$0	$0	$0	$0
Montana	$0	$0	$0	$0
Nebraska	$250,000	$250,000	$250,000	$0
Nevada	$0	$0	$0	$0
New Hampshire	$0	$0	$0	$0
New Jersey	$0	$0	$0	$0
New Mexico	$0	$0	$0	$0
New York	$250,000	$250,000	$250,000	$0
North Carolina	$325,000	$325,000	$325,000	$0
North Dakota	$0	$0	$0	$0
Ohio	$250,000	$250,000	$250,000	$0
Oklahoma	$250,000	$250,000	$250,000	$0
Oregon	$250,000	$250,000	$250,000	$0
Pennsylvania	$0	$0	$0	$0
Rhode Island	$250,000	$250,000	$250,000	$0
South Carolina	$0	$0	$0	$0
South Dakota	$0	$0	$0	$0
Tennessee	$250,000	$250,000	$250,000	$0
Texas	$0	$0	$0	$0
Utah	$250,000	$250,000	$250,000	$0
Vermont	$0	$0	$0	$0
Virginia	$250,000	$250,000	$250,000	$0
Washington	$325,000	$325,000	$325,000	$0
West Virginia	$0	$0	$0	$0
Wisconsin	$250,000	$250,000	$250,000	$0
Wyoming	$0	$0	$0	$0

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Territories				
American Samoa	$0	$0	$0	$0
Guam	$0	$0	$0	$0
Marshall Islands	$0	$0	$0	$0
Micronesia	$0	$0	$0	$0
Northern Mariana Islands	$0	$0	$0	$0
Puerto Rico	$0	$0	$0	$0
Republic Of Palau	$0	$0	$0	$0
Virgin Islands	$0	$0	$0	$0
Total	**$6,723,369**	**$6,723,369**	**$6,723,369**	**$0**

[1]CFDA NUMBER: 93.136 Discretionary

[2]This state table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit http://wwwn.cdc.gov/Fundingprofiles/FundingProfilesRIA/

[3]All Core SVIPP grantees receive base funding for the program. A select group of states also receive funding for two enhanced components: a) Regional Network Coordinating Organization (Colorado, Maryland, Massachusetts, North Carolina, and Washington), and b) Surveillance Quality Improvement (Colorado, Kentucky, Maryland, and Massachusetts). For more information on these additional components, please go to https://www.cdc.gov/injury/stateprograms/

State Table: Rape Prevention and Education[1,2,3,4]

	FY 2017 Final	FY 2018 Estimate	FY 2019[3] Estimate	FY 2019 +/- FY 2018
Alabama	$519,245	$559,078	$559,078	$0
Alaska[4]	$339,535	$244,700	$244,700	$0
Arizona	$643,727	$683,560	$683,560	$0
Arkansas	$375,261	$415,094	$415,094	$0
California[4]	$3,236,283	$3,086,116	$3,086,116	$0
Colorado[4]	$720,106	$569,939	$569,939	$0
Connecticut[4]	$600,111	$465,940	$465,940	$0
Delaware	$219,367	$259,200	$259,200	$0
District of Columbia	$196,484	$236,317	$236,317	$0
Florida	$1,602,442	$1,642,275	$1,642,275	$0
Georgia	$898,392	$938,225	$938,225	$0
Hawaii	$255,086	$294,919	$294,919	$0
Idaho	$271,099	$310,932	$310,932	$0
Illinois	$1,141,194	$1,181,027	$1,181,027	$0
Indiana	$650,888	$690,721	$690,721	$0
Iowa	$385,338	$425,171	$425,171	$0
Kansas	$370,410	$410,243	$410,243	$0
Kentucky	$446,111	$485,944	$485,944	$0
Louisiana	$500,213	$540,046	$540,046	$0
Maine	$252,619	$292,452	$292,452	$0
Maryland	$596,019	$635,852	$635,852	$0
Massachusetts[4]	$845,819	$695,652	$695,652	$0
Michigan	$913,533	$953,366	$953,366	$0
Minnesota[4]	$701,637	$599,573	$599,573	$0
Mississippi	$379,230	$419,063	$419,063	$0
Missouri	$612,658	$652,491	$652,491	$0
Montana	$226,434	$266,267	$266,267	$0
Nebraska	$291,089	$330,922	$330,922	$0
Nevada	$357,769	$397,602	$397,602	$0
New Hampshire[4]	$388,723	$291,533	$291,533	$0
New Jersey[4]	$1,019,193	$869,026	$869,026	$0
New Mexico	$309,076	$348,909	$348,909	$0
New York[4]	$1,837,000	$1,686,833	$1,686,833	$0
North Carolina	$886,637	$926,470	$926,470	$0
North Dakota	$201,959	$241,792	$241,792	$0
Ohio	$1,041,220	$1,081,053	$1,081,053	$0
Oklahoma	$439,800	$479,633	$479,633	$0
Oregon	$445,959	$485,792	$485,792	$0
Pennsylvania	$1,160,477	$1,200,310	$1,200,310	$0
Rhode Island	$231,313	$271,146	$271,146	$0
South Carolina	$507,320	$547,153	$547,153	$0
South Dakota	$212,897	$252,730	$252,730	$0
Tennessee	$640,250	$680,083	$680,083	$0
Texas	$2,092,549	$2,132,382	$2,132,382	$0
Utah[4]	$363,516	$403,349	$403,349	$0
Vermont	$198,340	$238,173	$238,173	$0
Virginia	$768,096	$807,929	$807,929	$0
Washington[4]	$859,149	$709,318	$709,318	$0
West Virginia	$293,148	$332,981	$332,981	$0
Wisconsin	$590,208	$630,041	$630,041	$0

	FY 2017 Final	FY 2018 Estimate	FY 2019[3] Estimate	FY 2019 +/- FY 2018
Wyoming	$192,665	$232,498	$232,498	$0
Territories				
American Samoa	$0	$0	$0	$0
Guam	$35,000	$44,875	$44,875	$0
Marshall Islands	$0	$0	$0	$0
Micronesia	$0	$0	$0	$0
Northern Mariana Islands	$35,000	$44,875	$44,875	$0
Puerto Rico[4]	$627,825	$477,658	$477,658	$0
Republic Of Palau	$0	$0	$0	$0
Virgin Islands	$35,000	$44,875	$44,875	$0
Subtotal States	$33,411,315	$33,531,821	$33,531,821	$0
Subtotal Territories	$732,825	$612,283	$612,283	$0
Total	**$34,144,140**	**$34,144,104**	**$34,144,104**	**$0**

[1]CFDA NUMBER: 93.136 Discretionary

[2]This State Table is a snapshot of selected programs that fund all 50 states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit https://www.cdc.gov/fundingprofiles/

[3]Funding levels are estimates; a new Notice of Funding Opportunity will be awarded in FY 2019.

[4]Based on an increase in appropriations in FY16, 12 states started receiving supplemental funding for evaluation activities.

State Table: National Violent Death Reporting System[1,2,3]

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$254,854	$254,854	$254,854	$0
Alaska	$162,180	$162,180	$162,180	$0
Arizona	$332,944	$332,944	$332,944	$0
Arkansas	$0	$0	$0	$0
California	$531,213	$531,213	$531,213	$0
Colorado	$258,110	$258,110	$258,110	$0
Connecticut	$196,615	$196,615	$196,615	$0
District of Columbia	$142,898	$142,898	$142,898	$0
Delaware	$145,147	$145,147	$145,147	$0
Florida	$0	$0	$0	$0
Georgia	$351,920	$351,920	$351,920	$0
Hawaii	$160,060	$160,060	$160,060	$0
Idaho	$0	$0	$0	$0
Illinois	$332,840	$332,840	$332,840	$0
Indiana	$303,160	$303,160	$303,160	$0
Iowa	$171,720	$171,720	$171,720	$0
Kansas	$205,640	$205,640	$205,640	$0
Kentucky	$244,330	$244,330	$244,330	$0
Louisiana	$295,544	$295,544	$295,544	$0
Maine[3]	$206,007	$206,007	$206,007	$0
Maryland	$321,180	$321,180	$321,180	$0
Massachusetts	$242,740	$242,740	$242,740	$0
Michigan	$373,650	$373,650	$373,650	$0
Minnesota	$229,411	$229,411	$229,411	$0
Mississippi	$0	$0	$0	$0
Missouri	$312,477	$312,477	$312,477	$0
Montana	$0	$0	$0	$0
Nebraska	$153,547	$153,547	$153,547	$0
Nevada	$228,257	$228,257	$228,257	$0
New Hampshire	$153,282	$153,282	$153,282	$0
New Jersey	$261,820	$261,820	$261,820	$0
New Mexico	$216,770	$216,770	$216,770	$0
New York	$452,620	$452,620	$452,620	$0
North Carolina	$341,320	$341,320	$341,320	$0
North Dakota	$0	$0	$0	$0
Ohio	$373,650	$373,650	$373,650	$0
Oklahoma	$244,860	$244,860	$244,860	$0
Oregon	$243,800	$243,800	$243,800	$0
Pennsylvania	$355,100	$355,100	$355,100	$0
Puerto Rico	$242,286	$242,286	$242,286	$0
Rhode Island	$143,100	$143,100	$143,100	$0
South Carolina	$250,160	$250,160	$250,160	$0
South Dakota	$0	$0	$0	$0
Tennessee	$0	$0	$0	$0
Texas	$0	$0	$0	$0
Utah	$221,540	$221,540	$221,540	$0
Vermont[3]	$0	$0	$0	$0
Virginia	$309,288	$309,288	$309,288	$0
Washington	$255,460	$255,460	$255,460	$0
West Virginia	$172,810	$172,810	$172,810	$0

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Wisconsin	$250,160	$250,160	$250,160	$0
Wyoming	$0	$0	$0	$0
Total	**$10,644,470**	**$10,644,470**	**$10,644,470**	**$0**

[1]CFDA NUMBER: 93.136 Discretionary.

[2]This State Table is a snapshot of selected programs that fund states (and in some cases local, tribal, and territorial grantees). For a more comprehensive view of grant and cooperative agreement funding to grantees by jurisdiction, visit http://wwwn.cdc.gov/Fundingprofiles/FundingProfilesRIA/.

[3] Maine and Vermont are funded together, with Maine as the lead state under the award.

State Table: Opioid Abuse and Overdose Prevention Programs[1]

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Alabama	$540,000	$540,000	$540,000	$0
Alaska	$1,687,954	$1,687,954	$1,687,954	$0
Arizona	$2,170,408	$2,170,408	$2,170,408	$0
Arkansas	$370,980	$370,980	$370,980	$0
California	$3,417,425	$3,417,425	$3,417,425	$0
Colorado	$2,269,398	$2,269,398	$2,269,398	$0
Connecticut	$2,145,607	$2,145,607	$2,145,607	$0
Delaware	$2,645,024	$2,645,024	$2,645,024	$0
District of Columbia	$879,296	$879,296	$879,296	$0
Florida	$690,999	$690,999	$690,999	$0
Georgia	$1,106,087	$1,106,087	$1,106,087	$0
Hawaii	$290,000	$290,000	$290,000	$0
Idaho	$1,036,760	$1,036,760	$1,036,760	$0
Illinois	$3,786,390	$3,786,390	$3,786,390	$0
Indiana	$2,863,135	$2,863,135	$2,863,135	$0
Iowa	$0	$0	$0	$0
Kansas	$1,349,991	$1,349,991	$1,349,991	$0
Kentucky	$3,170,006	$3,170,006	$3,170,006	$0
Louisiana	$997,702	$997,702	$997,702	$0
Maine	$1,198,130	$1,198,130	$1,198,130	$0
Maryland	$2,749,449	$2,749,449	$2,749,449	$0
Massachusetts	$3,204,743	$3,204,743	$3,204,743	$0
Michigan	$2,029,959	$2,029,959	$2,029,959	$0
Minnesota	$914,773	$914,773	$914,773	$0
Mississippi	$0	$0	$0	$0
Missouri	$448,000	$448,000	$448,000	$0
Montana	$540,000	$540,000	$540,000	$0
Nebraska	$1,388,248	$1,388,248	$1,388,248	$0
Nevada	$1,546,395	$1,546,395	$1,546,395	$0
New Hampshire	$356,373	$356,373	$356,373	$0
New Jersey	$1,892,490	$1,892,490	$1,892,490	$0
New Mexico	$2,885,783	$2,885,783	$2,885,783	$0
New York	$2,574,421	$2,574,421	$2,574,421	$0
North Carolina	$2,774,997	$2,774,997	$2,774,997	$0
North Dakota	$0	$0	$0	$0
Ohio	$2,569,715	$2,569,715	$2,569,715	$0
Oklahoma	$1,919,730	$1,919,730	$1,919,730	$0
Oregon	$2,430,092	$2,430,092	$2,430,092	$0
Pennsylvania	$2,626,000	$2,626,000	$2,626,000	$0
Rhode Island	$2,720,820	$2,720,820	$2,720,820	$0
South Carolina	$1,772,318	$1,772,318	$1,772,318	$0
South Dakota	$388,674	$388,674	$388,674	$0
Tennessee	$2,775,304	$2,775,304	$2,775,304	$0
Texas	$0	$0	$0	$0
Utah	$3,131,094	$3,131,094	$3,131,094	$0
Vermont	$2,026,684	$2,026,684	$2,026,684	$0
Virginia	$2,034,114	$2,034,114	$2,034,114	$0
Washington	$2,627,244	$2,627,244	$2,627,244	$0
West Virginia	$2,663,369	$2,663,369	$2,663,369	$0
Wisconsin	$3,027,394	$3,027,394	$3,027,394	$0

	FY 2017 Final	FY 2018 Estimate	FY 2019 Estimate	FY 2019 +/- FY 2018
Wyoming	$0	$0	$0	$0
Total	**$88,633,475**	**$88,633,475**	**$88,633,475**	**$0**

[1]This table combines all state opioid overdose prevention programs.

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NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Discretionary Total	**$334.405**	**$332.924**	**$0.000**	**-$332.924**
FTEs[3]	1,113	1,117	45[1]	-1,072
Mandatory Programs Total	**$397.434**	**$**475.374	**$469.179**	-$6.195
Energy Employees Occupational Illness Compensation Program Act (EEOICPA)	$50.320	$55.358	$0.000	-$55.358
World Trade Center Health Program (WTCHP)[2]	$350.792	$420.016	$469.179	+$49.163

[1] FY 2019 FTE estimates may be adjusted based on proposed funding level as CDC develops a plan to implement proposed policy requirements.
[2] Reflects the federal share of WTCHP only. These amounts are based on trend analysis and are the best estimates at the time, but are subject to change.
[3] FTE displayed reflect updated estimated levels for FY 2017, FY 2018, and FY 2019

Enabling Legislation Citation: PHSA Title II §§ 301, 304, 306, 307, 308(d), 310, 311, 317, 317A, 317B, 319, 327, 352, 399MM, 1102, Title XVII, 2695; Occupational Safety and Health Act of 1970 §§20–22, P.L. 91-596 as amended by P.L. 107-188 and 109-236 (29 U.S.C. 669–671); Federal Mine Safety and Health Act of 1977, P.L. 91-173 as amended by P.L. 95-164 and P.L. 109-236 (30 U.S.C. 811–813, 842, 843–846, 861, 951–952, 957, 962, 963, 964); Black Lung Benefits Reform Act of 1977 § 19, P.L. 95-239 (30 U.S.C. 902); Bureau of Mine Act, as amended by P.L. 104-208 (30 U.S.C. 1 note, 3, 5); Radiation Exposure Compensation Act, §§ 6 and 12 (42 U.S.C. 2210 note); Energy Employees Occupational Illness Compensation Program Act of 2000, as amended (42 U.S.C. §§7384, et seq.); Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 §§ 3611, 3612, 3623, 3624, 3625, 3626, 3633 of P.L. 106-398; National Defense Authorization Act for Fiscal Year 2006, P.L. 109-163; Toxic Substances Control Act, P.L. 94-469 as amended by 102-550, (15 U.S.C. 2682, 2685); Ryan White HIV/AIDS Treatment Extension Act of 2009 § 2695, P.L. 111-87 (42 U.S.C. 300ff-131); James Zadroga 9/11 Health And Compensation Reauthorization Act (2015), Division O, Title Iii, P.L 114-113

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite

Allocation Methods: Direct Federal/Intramural, Competitive Grant/Cooperative Agreements, Contracts, Other

CDC's Occupational Safety and Health Research protects the nation's 161 million workers and provides the only dedicated federal investment for research needed to prevent injuries and illnesses that cost the United States $250 billion annually.[130] The National Institute for Occupational Safety and Health (NIOSH) was established by the Occupational Safety and Health Act of 1970 to generate new knowledge in occupational safety and health and to transfer that knowledge to employers and employees. Research efforts are aligned under the National Occupational Research Agenda (NORA), which is a public-private partnership that identifies critical needs and transfers scientific findings to keep people safe and healthy at work. CDC's FY 2019 request does not include occupational safety and health research, which along with the Energy Employees Occupational Illness Compensation Program Act (EEOICPA) activities, will be consolidated into the National Institutes of Health (NIH) and presented as a separate entity within the NIH budget request. Additional information on these activities, including the FY 2019 Budget request, can be found in the FY 2019 NIH Budget justification documents. CDC's FY 2019 request includes mandatory funding for the World Trade Center Health Program, which CDC will continue to administer.

[130] Leigh JP. Economic burden of occupational injury and illness in the United States. Milbank Q 2011;89:728–72. https://www.ncbi.nlm.nih.gov/pubmed/22188353

World Trade Center Health Program Budget Request[1,2]

(dollars in millions)	FY 2017 Final	FY 2018 Estimate	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
World Trade Center – Mandatory	**$350.792**	**$420.016**	**$469.179**	**+$49.163**

[1] The FY 2019 WTCHP amount is an estimate that may be revised during FY19 planning process.

[2] Reflects the federal share of WTC Health Program only. These amounts are based on trend analysis and are the best estimates at the time but are subject to change.

The September 11, 2001, terrorist attacks in New York City, at the Pentagon in Arlington, Virginia, and in Shanksville, Pennsylvania, required extensive response, recovery, and cleanup activities. Thousands of responders and survivors were exposed to toxic smoke, dust, debris, and psychological trauma. The James Zadroga 9/11 Health and Compensation Act of 2010 (P.L. 111-347) created the World Trade Center (WTC) Health Program to provide healthcare benefits to eligible responders and survivors beginning on July 1, 2011. On December 18, 2015, the James Zadroga 9/11 Health and Compensation Reauthorization Act was enacted, extending the WTC Health Program through 2090. Pursuant to this statute, the WTC Health Program provides monitoring and treatment benefits to eligible responders and survivors, conducts research on WTC-related health conditions, and maintains a health registry to collect data on those affected by the September 11, 2001, terrorist attacks. As of September 30, 2017, the WTC Health Program enrollment included 82,190 eligible responders and survivors. As of September 30, 2017, the WTC Health Program paid claims for eligible treatment, including medication, for more than 26,352 of these responders and survivors in the past year.

WTC Health Program Enrollment

	Sept. 30, 2016	Dec. 31, 2016	March 31, 2017	June 30, 2017	Sept. 30, 2017
New Members since July 2011[1]	14,759	16,038	17,322	19,014	21,224
Total Members[2]	75,739	77,008	78,291	79,981	82,190

[1]New members enrolled under the Zadroga Act requirements (adjustments are made each quarter to account for member records changes), including Pentagon and Shanksville, PA.

[2]New members and members enrolled prior to 7/1/2011 (adjustments are made each quarter to account for member records changes).

WTC Health Program Paid Claims

Healthcare Services[1]	Sept. 30, 2016	Dec. 31, 2016	March 31, 2017	June 30, 2017	Sept. 30, 2017
Members who had monitoring or screening exams	35,101	36,032	35,537	34,487	34,002
Members who had diagnostic evaluations[2]	20,258	20,866	20,848	20,577	21,547
Members who had out-patient treatment	18,488	19,104	19,229	19,318	19,792
Members who had in-patient treatment	652	647	654	647	686
Members who received medications	21,183	21,560	22,029	22,297	22,535

[1]Based on claims for services that were paid during the previous 12-month period

[2]For determining if a member has a WTC-related health condition and for certifying that health condition.

CDC's FY 2019 estimate of **$469,179,000** in mandatory Federal share funding for the WTC Health Program is $49,163,000 above the estimated FY 2018 level. Funds support the quality care, including treatment, of covered WTC-related health conditions for enrolled responders and survivors. Including New York City's required contribution of $52,131,000, a total of $521,310,000 in resources will support the WTC Health Program in FY 2019. Through FY 2017, the WTC Health Program has certified 9,203 cancer cases, which is an increase of more than 2,400 cases over the past year. Of those members certified for at least one type of cancer, more than 4,890 members received cancer care compared to approximately 3,750 in FY 2016.

Mandatory funding will support:

- Monitoring and treatment services, including services for certain types of cancer, for responders and survivors in the WTC Health Program
- Infrastructure for the Clinical Centers of Excellence (CCEs) and the Nationwide Provider Network (NPN) to support clinical activities
- Infrastructure for data centers
- Extramural research projects
- Outreach and education projects
- WTC Health Registry activities
- WTC Health Program Scientific/Technical Advisory Committee.

The WTC Health Program provides monitoring and treatment services via a fee-for-service model of delivery. These services are provided at no cost to the WTC Health Program members. Where applicable, the WTC Health Program recoups money from workers' compensation for work-related health conditions. Similarly, the WTC Health Program seeks to coordinate benefits with public and private health insurance plans for treatment provided for WTC-related health conditions that are not work-related. In FY 2019, CDC will continue contracts with CCEs and the NPN to provide administrative and member services that support the provision of healthcare benefits, and contracts with data centers to provide data collection and analysis. CDC will also renew the interagency agreement with the Centers for Medicare and Medicaid Services to reimburse the CCEs and the NPN for clinical services provided to the WTC Health Program members. The WTC Health Program provides healthcare benefits through CCEs, which work as a clinical consortium, and through the NPN according to standardized medical monitoring protocols and programmatic policies and procedures across the clinical sites. This standardization and the fee-for-service model enable the WTC Health Program to track claims-level data for monitoring and treatment, analyze the data for program compliance, and report on spending at a more detailed level across the WTC Health Program. The WTC Health Program also engages with labor representatives and members of the New York City community to ensure awareness of emerging issues.

CDC will use FY 2019 funds to continue research projects and epidemiologic studies to help answer critical questions about physical and mental health conditions related to the September 11, 2001, terrorist attacks. Additionally, a portion of the FY 2019 funds will continue the cooperative agreement with the New York City Department of Health and Mental Hygiene for the WTC Health Registry activities. The WTC Health Registry will continue to provide a database to help assess health effects among persons impacted by exposures to the WTC disaster.

Funds will also support the WTC Health Program Scientific/Technical Advisory Committee. Upon request from the Administrator of the WTC Health Program, the Advisory Committee will make recommendations regarding additional eligibility criteria, the addition of new health conditions to the list of covered conditions, and research priorities.

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GLOBAL HEALTH

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Total Request	$434.120	$432.166	$408.762	-$23.404
FTEs	1,351	1,276	1,276	0
Global HIV/AIDS	$128.120	$127.549	$69.547	-$58.002
Global Immunization	$223.487	$222.479	$206.000	-$16.479
Polio Eradication (non-add)	$173.604	$172.818	$165.000	-$7.818
Parasitic Diseases and Malaria	$24.443	$24.334	$24.453	+$0.119
Global Disease Detection and Other Programs	$58.071	$57.805	$108.762	+$50.957

Enabling Legislation Citation: PHSA Title II §§ 301, 304, 307, 310, 319*, 327, 340C, 361–369*, Title VVII*, 2315, 2341; Foreign Assistance Act of 1961 §§ 104, 627, 628; Federal Employees International Organization Service Act § 3 (5 USC 3343); International Health Research Act of 1960 § 5; Agriculture Trade Development and Assistance Act of 1954 § 104; 38 U.S.C. § 3968; Foreign Employees Compensation Program (22 U.S.C. 3968); Tom Lantos and Henry J. Hyde United States Global Leadership Against HIV/AIDS, Tuberculosis, and Malaria Reauthorization Act of 2008 (P.L.110-293); PEPFAR Stewardship & Oversight Act of 2013 (P.L. 113-56); Section 212 of the Consolidated Appropriations Act, 2016 (P.L. 114-113, Division H)

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Competitive Grants/Cooperative Agreements, Direct Contracts, Interagency Agreements

CDC engages internationally to protect the health of the American people and save lives worldwide. CDC supports global efforts to detect epidemic threats earlier, respond more effectively, and prevent avoidable catastrophes—supporting CDC's overarching goal of ensuring global health security, while building domestic defense against health threats. With scientists and health experts embedded in countries around the globe, CDC works with partners to adapt scientific evidence into policies and public health actions—strengthening global public health preparedness and response capacity for outbreak and epidemic control and improving health outcomes in partner countries.

CDC's FY 2019 request of **$408,762,000** for Global Health is $23,404,093 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions from the FY 2018 President's Budget Request. The request includes $58,762,000 to protect Americans by supporting improvements to public health capacity in countries at risk from uncontrolled outbreaks of infectious diseases.

GLOBAL HEALTH

BY THE NUMBERS…

- In FY 2017, CDC provided life-saving antiretroviral treatment (ART) for 7.33 million people, over half of the 13.3 million people receiving ART support through PEPFAR.[1]
- TB is the number 1 killer of people living with HIV. In 2016, through PEPFAR, CDC supported TB screening for 3.5 million people living with HIV.[2]
- CDC protects people living in America from the threat posed by reintroduction of malaria from the approximately 1,700 travelers per year who become infected with malaria abroad and then return to the U.S. [3]
- Since CDC and partners began to work towards eradication, polio cases have decreased from more than 350,000 per year in 1988 to 74 in 2015 and 22 in 2017. Three countries continue to record low-level transmission of wild poliovirus: Afghanistan, Pakistan, and Nigeria. [4]
- Over the past decade, CDC's strategically-placed Global Disease Detection Centers have assisted in the detection and identification of 11 novel strains and pathogens in the world, as well as provided scientific support for more than 2,000 outbreaks, including SARS, polio, MERS, cholera, Nipah virus, Ebola, and Zika.[5]
- CDC's Field Epidemiology Training Program (FETP) has trained more than 10,000 disease detectives since 1980 and currently operates in 74 countries. FETP Advanced residents responded to 556 suspected outbreaks or public health emergencies in 2016.[6]

References:

[1] HIV & Tuberculosis. (2017, December 05). Retrieved December 28, 2017, from https://www.cdc.gov/globalhivtb/who-we-are/events/world-aids-day/WorldAidsDay2017.html#WAD_CDCImpact

[2] DGHT Tuberculosis Factsheet (2017, December 11). Retrieved December 28, 2017, from https://www.cdc.gov/globalhivtb/images/DGHT-TB-Factsheet.pdf

[3] Mace, K. E. (2017, June 21). Malaria Surveillance - United States, 2014. December 28, 2017, http://dx.doi.org/10.15585/mmwr.ss6612a1

[4] This Week. (n.d.). Retrieved December 28, 2017, from http://polioeradication.org/polio-today/polio-now/this-week/

[5] GDD CENTERS ACCOMPLISHMENTS: 2016 AND CUMULATIVE(2017, August 08). Retrieved December 28, 2017, from https://www.cdc.gov/globalhealth/healthprotection/gdd/pdf/gdd_accomplishments_ytd_and_cumulative.pdf

[6] Tappero JW, Cassell CH, Bunnell R, Angulo FJ, Craig A, Pesik N, et al. US Centers for Disease Control and Prevention and Its Partners' Contributions to Global Health Security. Emerg Infect Dis. 2017;23(13)

Global Health Funding History	
Fiscal Year	Dollars (in millions)
2015	$446.517
2016	$426.621
2017 Final	$434.120
2018 Annualized CR	$432.166
2019 President's Budget	$408.762

Global HIV/AIDS Budget Request

HIV remains a leading cause of death in many countries as well as a leading cause of mortality among women of reproductive age. Globally, there are 37 million people living with HIV, with nearly 5,000 new infections each day. Continued work to control the HIV epidemic will reduce the number of new infections and total number of persons living with HIV, and in turn, save lives and decrease future costs of the epidemic.

CDC plays an essential role in combatting HIV by using data and science to drive rapid changes in practice to accomplish the most efficient, high impact public health results. Serving over 50 countries in Africa, Asia, Central America, South America, and the Caribbean, CDC provides HIV scientific and programmatic support, leadership, and mentoring. CDC's critical HIV laboratory capacity and scientific expertise also provides significant innovations in laboratory diagnostics and testing, as well as scientific leadership. As a primary implementer[131] of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), CDC supports strong, sustainable international HIV programs and public health systems that can effectively lead a countries' sustained response to the epidemic, and to other global health threats, ultimately protecting Americans at home. CDC leverages its public health science expertise, and its long-standing partnerships with ministries of health, community organizations, and other global partners to establish country-driven programs and systems that focus on ensuring evidence-based decision making through high-quality HIV monitoring and evaluation.

The U.S. government support of life-saving antiretroviral therapy (ART) and large-scale implementation of combination prevention programs saves lives, prevents new infections, improves health, and protects families and communities. Through PEPFAR, CDC, in collaboration with ICAP at Columbia University, led the Population-based HIV Impact Assessments (PHIAs), which directly measured reductions in new HIV infections and high rates of viral load suppression at a national level, while also identifying sub-populations yet to be fully reached. The recently released PHIA results affirm that global efforts to end HIV are working. CDC, through its work with PEPFAR, global partners, and in-country partners has helped reduce AIDS-related deaths by 48% since 2005. CDC has done this by focusing on accountability, quality, and the use of data to improve decision-making and program focus. In 2017, as a key driver of U.S. progress through PEPFAR, CDC was responsible for:

- Life-saving antiretroviral treatment for 7.33 million men, women, and children, of the 13.3 million supported by PEPFAR.
- Voluntary medical male circumcision procedures for approximately 1.64 million men, of the 3.7 million supported by PEPFAR.
- Quality test results in 6,675 laboratory and point of care testing sites enrolled in a continuous quality improvement program, of the 7,596 enrolled sites supported by PEPFAR.

Budget Request

CDC's FY 2019 request of **$69,547,000** for Global HIV/AIDS is $58,001,893 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reduction in the Global HIV/AIDS program from the FY 2018 President's Budget Request. At this funding level, CDC will continue supporting program implementation and scientific and technical experts at headquarters and in the field. CDC will continue to concentrate its efforts on countries, populations, and programs where resources will have the greatest public health impact. CDC will also optimize staffing and technical resources to address the highest-priority global HIV needs, and ensure that ongoing activities are consistent with overall PEPFAR priorities and are lean, efficient, and effective. To achieve transformative epidemic impact, CDC will work with countries closest to reaching epidemic control to intensively focus on scaling up HIV treatment, to decrease new infections and AIDS-related deaths, and scale up alternative

[131] http://www.cdc.gov/globalhivtb/

service delivery models to reduce service delivery costs; prevent sexual violence that contributes to risk of HIV; and prevent, find, and treat TB among people living with HIV.

CDC will provide technical support to countries to sustain current levels of treatment and voluntary medical male circumcision, a proven HIV prevention effort. CDC is focused on achieving epidemic control. This approach to rapidly achieve sustained epidemic control in a number of countries over the next three to four years will allow cost-savings that can then be repurposed to other critical countries in future years, with a longer trajectory to epidemic control. CDC will continue streamlined expansion of annual viral load testing services, used to indicate how well HIV treatment is working, to individuals on PEPFAR-supported antiretroviral therapy. In FY 2019, CDC will target current interventions and technical assistance to countries that have adopted Test-and-Start, a global initiative focused on starting patients on ART immediately after a HIV-positive diagnosis in order to save lives and prevent new infections. CDC will implement differentiated models of service delivery in select countries to ensure more effective and efficient HIV treatment.

Data-Driven Implementation to Ensure Quality Programs

CDC uses data to promote evidence-based program planning, impact, sustainability, and accountability through innovative methods. For example, CDC's work on improving efficiency and effectiveness through expenditure analysis and economic evaluations has led to a 32% reduction of expenditures for people on treatment in 15 PEPFAR countries, allowing $260 million to be targeted to proven interventions and quality improvement activities. In FY 2019, CDC will strategically focus collaboration with partner countries to monitor and evaluate programs. CDC will streamline its activities in strengthening the collection and use of surveillance data that improves efficiency and targets program activities.

Essential Public Health Platforms

Two essential elements to any public health platform are laboratories and surveillance. Laboratories are vital to an effective response to HIV and other public health threats. CDC supports HIV research and innovation activities, including the detection and study of drug resistance and the development of new, superior HIV testing technologies that can be used both domestically and internationally. CDC developed and implemented Dried Tube Specimen (DTS) technology, used globally for the development of safe, cost-efficient proficiency testing materials to assure the quality and accuracy of HIV rapid tests. CDC developed a low-cost laboratory-based assay that distinguishes between recent and long-term HIV infections and is used to estimate HIV-1 incidence. CDC has continued to innovate this technology to a rapid, point of care HIV test that can simultaneously diagnose HIV infection and distinguish between recent and long-term infection. In FY 2019, CDC will strategically focus its support of country-driven efforts to provide quality diagnostic services for prevention, surveillance, and treatment programs across diseases. Surveillance helps determine what is happening on the ground and what interventions might work. These data provide information about behavior, incidence, prevalence, and mortality in populations prior to and post HIV diagnosis. CDC's surveillance activities are a primary driver of decisions for the program. CDC is the lead supporting author of the WHO Biobehavioral Survey Guidelines, which provide global guidance on sampling those most difficult to sample. In FY 2019, CDC will focus on priority surveillance and health information systems, at a reduced level.

Global Tuberculosis

Tuberculosis (TB) is the world's deadliest infectious disease. Each year TB claims 1.7 million lives. 2 billion people, one third of the world's population, are infected with TB. In particular, multidrug-resistant TB (MDR-TB) must be met with a coordinated and focused global response, as global reduction in TB will reduce rates here in the United States.

The rate of decline in global TB incidence has stalled. In 2016, 10.4 million people fell ill from TB and 1.7 million people died, which is the equivalent of nearly 4,700 people dying of TB every day. Even more threatening is MDR-TB, or TB that has become resistant to treatment with at least two of the most powerful first-line anti-TB drugs. It is estimated that only one in five people eligible for MDR-TB treatment are on treatment, which allows for further spread of the disease. There are three key factors continuing to drive the epidemic: (1) undiagnosed TB, (2) low resourced TB control programs and associated breakdowns in healthcare infrastructure, and (3) the HIV epidemic.

In FY 2019, CDC's Global TB activities will focus on the following priorities:

- Find: improve case-finding approaches, particularly for high-risk populations, and improve diagnostic algorithms to optimize use of new and existing diagnostics
    - CDC is the only U.S. government agency partnering with countries and WHO to conduct TB prevalence and drug resistance surveys to document the global burden of disease, allowing countries to better target their health interventions and efforts.
- Cure: optimize TB and MDR-TB treatment regimens; improve linkage to care and treatment, especially among people living with HIV; improve treatment adherence and cure rates among patients with drug-resistant TB; and assess costs to patients and barriers to care
- Prevent: implement effective TB infection control practices in health facilities and congregate settings; scale-up preventive therapy for people living with HIV and children
- Sustainability: scale-up laboratory external quality assurance systems and training; strengthen surveillance systems to improve TB and MDR-TB burden estimates and track program performance; train ministry of health and national TB program staff on critical technical and programmatic areas, including infection control, diagnostics and quality assurance, data management, and operational research
    - CDC's TB Reference Lab provides expert technical assistance to National TB Programs and National TB Reference Laboratories to ensure the efficiency of diagnostic networks and accuracy of laboratory and point of care testing, in-house quality assurance testing, and determination of TB drug resistance patterns.

CDC's global TB activities are supported by funding from CDC's HIV/AIDS, Viral Hepatitis, Sexually Transmitted Infections, and Tuberculosis budget.

Global Immunization Budget Request

Vaccines are one of the most cost effective lifesaving public health interventions. Although strong immunization programs in the United States have reduced the domestic disease burden and remain critical to keeping Americans safe and healthy, Americans remain at risk from other imported vaccine-preventable diseases (VPDs), such as polio and measles. CDC's global immunization activities focus on people in developing countries who are at the highest risk for illness and death from VPDs in order to stop these diseases before they reach our borders. CDC's global immunization program plays an essential role in identifying where VPDs emerge and teaches other nations the basic skills needed to control disease outbreaks at the source.

In 2015, the United States experienced a large, multi-state measles outbreak. 125 cases in eight states were linked to an amusement park in California[132]. Analysis by CDC laboratories identified the measles virus type in this outbreak as identical to the virus type that caused a large measles outbreak in the Philippines in 2014.[133] Nearly all measles cases in the United States are caused by international importation of the measles virus as measles has been eliminated from the United States since 2000.[134]

In addition to causing disease and death, VPD outbreaks are expensive to state and local health departments and the U.S. healthcare system. For example, a CDC analysis published in 2011 found that hospitals can incur high costs in responding to measles in their facilities, with two hospitals spending almost $800,000 responding to just seven patients with measles.[135] Another CDC study published in 2013 found that the economic burden on just local and state public health institutions that dealt with measles outbreaks during 2011 ranged from an estimated $2.7 million to $5.3 million in total costs.[136] Overall, the cost to local health departments to investigate an outbreak of VPDs is approximately $50,000 to $100,000 per case.[137]

Budget Request

CDC's FY 2019 request of **$206,000,000** for Global Immunization is $16,478,816 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions in Polio Eradication and Measles and Other Vaccine Preventable Diseases from the FY 2018 President's Budget Request. CDC, as a part of the Global Polio Eradication Initiative, is committed to the global eradication of polio and robust control of VPDs. Worldwide polio eradication is estimated to save up to $50 billion by 2035 in costs associated with polio treatment, immunization programs, and lost productivity[138]. While polio cases continue to decrease annually since the estimated case count of 350,000 in 1988, the annual case count was 20, as of December 27, 2017. The goal is zero cases; that has not yet been achieved.

In FY 2019, CDC will strategically target its core VPD activities, such as measles and rubella elimination, to countries with the highest disease burden. At this funding level, CDC will continue support scientific and technical experts at CDC headquarters and in the field to respond to VPD outbreaks at a reduced level.

In FY 2019, CDC will focus its polio eradication efforts on core public health activities that align with CDC's mission and use proven interventions to move towards global eradication to ensure Americans are not at risk from this deadly disease anymore.

[132] www.cdc.gov/mmwr/preview/mmwrhtml/mm6414a1.htm
[133] http://www.cdc.gov/measles/cases-outbreaks.html
[134] http://www.cdc.gov/measles/downloads/report-elimination-measles-rubella-crs.pdf
[135] https://academic.oup.com/jid/article/203/11/1517/862546/Health-Care-Associated-Measles-Outbreak-in-the
[136] https://www.ncbi.nlm.nih.gov/pubmed/24135574
[137] https://www.ncbi.nlm.nih.gov/pubmed/24135574
[138] https://www.ncbi.nlm.nih.gov/pubmed/21029809

Polio Eradication

CDC is the U.S. lead for scientific and technical efforts in polio eradication. CDC's leadership and guidance in accountability, environmental surveillance, and scientific and programmatic implementation has contributed substantially to the more than 99.9% decline in global and U.S. polio cases. However, to achieve and maintain worldwide polio eradication, CDC and its partners must minimize the risk of poliovirus reintroduction to areas declared polio-free through dedicated, ongoing surveillance. In FY 2019, CDC will conduct surveillance of polio viruses designed to ensure prompt detection that would prevent potential outbreaks of paralytic polio disease, but will have limited capacity to verify interruption of virus circulation in high-risk countries. CDC will continue collaboration with public-private partners and ministries of health intended to provide epidemiologic, laboratory, and programmatic support in developing, monitoring, and evaluating programs and national level surveillance. CDC will continue its activities in quality assurance, diagnostic confirmation, and genomic sequencing of samples obtained worldwide; as well as to promote national ownership, oversight, and accountability.

CDC will also begin executing polio legacy transition planning, which seeks to sustain functions that are essential to maintaining a polio-free world. These efforts include ensuring routine polio vaccination, vaccine stockpile, and ongoing laboratory containment of polioviruses, as well as enhancing surveillance, laboratory, and emergency operations center capabilities for epidemic prone diseases such as cholera, Ebola, typhoid, and yellow fever. Focusing on countries with significant polio assets, which also have the highest burden of measles, CDC will work to improve vaccine coverage for all recommended vaccines, support global goals for elimination of measles and rubella, and enhance global capacity for early detection and response to vaccine-preventable outbreaks.

Measles and other vaccine-preventable diseases

CDC's leadership and global immunization expertise date back to 1966 when the agency established the CDC Smallpox Eradication Program. CDC's global immunization efforts to control, eliminate, and eradicate VPDs and strengthen worldwide immunization programs protect people living in the United States from VPDs that have been eliminated or no longer circulate in our country, including measles and rubella. Estimates place the cost of global control of measles and rubella at $98 billion annually in program and treatment costs and lost productivity[139]. The proven intervention—routine childhood immunization—has the highest return on investment in low-and middle-income countries, a ratio of $58 return per $1 invested.[140]

Since 2001, tremendous progress has been made towards both measles and rubella elimination. Measles-related deaths are down 84% from 2000 levels as of 2016, preventing 20 million measles-related deaths. Rubella/congenital rubella syndrome (CRS) has been eliminated from the Americas. Despite these advances, neither measles nor rubella elimination are on track for eradication worldwide, putting Americans at risk for these diseases. A focus on improving surveillance and ongoing immunization programs is required to ensure that gains in measles and rubella control can be sustained. In FY 2019, CDC will focus measles vaccine purchase and campaigns, including mass vaccination activities, to those countries with the highest disease burden. CDC will strengthen the collection and use of surveillance data to better guide program strategy and implementation for measles and rubella control, and continue to collaborate with countries with the highest burden of VPDs to assist these countries with building capacity to sustain their own immunization programs and surveillance systems. CDC will have limited capacity to rapidly deploy internationally to support vaccination and surveillance efforts at the country level in the event of an outbreak of measles or other VPDs, including Yellow Fever and cholera. At this funding level, CDC will strategically limit reference laboratory services and viral sequencing to priority areas, including CDC's polio, measles, and rubella reference laboratories' diagnostic services.

[139] Thompson KM, Odahowski CL. Risk Analysis 2016;36(7):1357-1382

[140] Ozawa S, et al. Health Affairs 2016;35(2):199-207 *http://content.healthaffairs.org/content/35/2/199.abstract*

Parasitic Diseases and Malaria Budget Request

CDC's parasitic diseases and malaria activities seek to reduce related death, illness, and disability in the United States, eliminate the global burden of malaria and targeted neglected tropical diseases (NTDs), and advance research to detect, prevent, and eliminate parasitic diseases.

Serving as a global leader in malaria and parasitic disease research and technical innovation, CDC engages in strategic and applied research to accelerate global control and elimination of these deadly diseases. CDC's laboratory, including the insectary and parasitic disease lab, support the critical scientific leadership required to achieve these priorities.

Budget Request

CDC's FY 2019 request of **$24,453,000** for Parasitic Diseases and Malaria is $119,380 above the FY 2018 Annualized CR level.

Parasitic Diseases in the United States

CDC diagnoses, supports treatment, and prevents sickness and death in the United States and globally from parasitic infections. CDC maintains the national parasitic disease reference laboratories, including an online, interactive diagnostic resource, and coordinates national surveillance for notifiable parasitic diseases, including malaria. Because diagnostic capacity for parasitic diseases at the state-level has declined in recent years, states and counties rely on these CDC systems to monitor, accurately diagnose, and treat parasitic diseases. CDC also provides 24/7 expert consultation to health departments, physicians, hospitals, and laboratories and releases life-saving medications that are not available commercially.

In 2016, CDC labs tested more than 8,000 specimens from U.S. residents and government overseas staff for parasitic diseases and responded to approximately 7,500 inquiries via its 24/7 hotline, many of them urgent requests related to life-saving consultations, diagnosis, and treatment. CDC expects the demand for its reference laboratory and consultation services to continue increasing in FY 2019 due to increases in global travel and imports, awareness of domestically acquired parasitic infections, and declining state laboratory capacity.

These activities save lives. For example, CDC collaborated with the Association of Organ Procurement Organizations (AOPOs) to improve screening for roundworm infection, preventing death and illness in transplant recipients. CDC's efforts resulted in an increased percentage of AOPOs (from 10% to 24%) who conducted/considered targeted donor screening, which is estimated to save 200-600 lives annually.

Global Malaria

CDC is a global leader in preventing and treating malaria, providing scientific expertise to endemic countries and partners to improve surveillance, laboratory systems, and management of malaria cases. CDC also jointly implements the President's Malaria Initiative (PMI) with USAID in 24 African focus countries and the six-country Greater Mekong sub-Region. CDC plays a unique role within PMI by providing technical leadership and advice to the USG Malaria Coordinator on surveillance, monitoring and evaluation, and operational research. CDC is the key implementer of these activities and plays a critical role in driving progress toward malaria elimination.

CDC works with ministries of health and other partners to strengthen laboratory diagnostics, surveillance, and evaluation to prevent and control malaria. The most sustainable approach to address the malaria threat is to eliminate it. Current malaria surveillance approaches focus on periodic tracking of commodity purchase and coverage rates. However, to enable progress toward malaria elimination, countries will need to carry out on-going, real time disease surveillance of laboratory-confirmed cases. CDC's work leading the Malaria Zero Consortium in Hispaniola demonstrates real progress towards malaria elimination and provides evidence-based guidance to inform other countries working towards malaria elimination.

Despite progress, malaria remains endemic in many regions and countries. The parasites that cause malaria continue to evolve, and are showing signs of resistance to current treatment drugs, making it more difficult to successfully treat the disease. In addition, with large-scale implementation of prevention strategies, there is a need to develop program efficiencies, improve interventions and tools, and ensure that new technologies developed in the lab are quickly adapted for use in the field. CDC conducts strategic and applied research to address these issues and accelerate malaria control and elimination. Without these next generation tools, malaria elimination will remain an elusive goal.

A critical asset is CDC's global reference insectary, which allows scientists to better understand how mosquitos and other insect vectors transmit disease; informs how to manage and mitigate insecticide resistance; and facilitates successful field implementation of vector-control interventions, such as insecticide-treated nets, and indoor residual spraying. CDC will continue testing of long-lasting insecticide-treated mosquito nets for durability and retention of insecticidal effectiveness, monitor levels of insecticide resistance among mosquitoes in President's Malaria Initiative countries, and assess new vector control methods and insecticides in FY 2019. Other areas of focus for CDC include studying how malaria cases are diagnosed and treated and improving or developing new prevention approaches (e.g., preventive treatment of pregnant women, novel drugs, vaccines, and delivery systems) which can be adopted by WHO, MOH, and other partners.

CDC's laboratory expertise plays an additional critical role. Using advanced molecular detection (AMD) tools, CDC has developed a more sensitive, rapid, and less expensive method for surveillance of malaria drug resistance. This test will replace current methods used for malaria drug resistance surveillance in public health laboratories in the U.S., aid in global efforts to mitigate spread of malaria drug resistance, and will help inform prevention and treatment guidelines for the U.S. and international settings.

Neglected Tropical Diseases

CDC works to reduce the substantial illnesses and disability caused by neglected tropical diseases (NTDs), with a focus on NTDs that can be controlled through mass drug administration or other low cost interventions. These diseases are lymphatic filariasis (elephantiasis), onchocerciasis (river blindness), blinding trachoma, schistosomiasis, three soil-transmitted helminths (intestinal worms), and Guinea worm disease.

CDC works to improve NTD control programs, more accurately measure program impact, and improve diagnostic and epidemiological tools to support elimination. For example, in FY 2017, CDC helped countries implement surveys to assess impact of mass drug administration across multiple NTDs and other diseases. CDC has also developed and validated a multiplex immunoassay that detects antibodies for more than 35 viral, bacterial, and parasitic diseases, and provides an assessment of vaccination coverage levels, using a single small blood sample. This provides a more cost-effective approach to obtain critical public health information as most surveillance activity costs are related to sample collection. Starting in FY 2018 and continuing in FY 2019, CDC is using multiplex to conduct integrated serosurveillance for infectious diseases in large scale pilots in Columbia, Mexico, and Paraguay. CDC has also developed a blood test that makes it possible to monitor the impact of trachoma elimination programs and provide early detection if trachoma returns. The test offers savings of hundreds of thousands of dollars in training costs alone, compared to clinical eye exams currently used.

As new technologies become available, CDC develops the critical evidence that informs WHO guidelines. In FY 2018, CDC will provide technical expertise for the development of global guidance for onchocerciasis elimination and schistosomiasis control.

In FY 2019, CDC will continue to assist countries in Africa, Asia, and the Americas to conduct transmission assessment surveys for lymphatic filariasis and other NTDs, assist MOH to implement efficient methodologies that assess progress towards elimination, control, or management of NTDs and associated long-term disability, and develop and evaluate new diagnostic tools and methods for demonstrating interruption and/or elimination of NTD transmission.

Global Disease Detection and Other Health Programs Budget Request

From Avian flu to Zika, the world faces a host of dangerous pathogens and potential epidemics. The Ebola outbreak in West Africa, the spread of Zika, and large outbreaks of yellow fever and cholera remind us of our personal vulnerability and collective peril, as well as the risk to our national, economic, and health security posed by epidemic diseases. CDC is the lead technical implementing agency for the U.S. government's global health security work to keep Americans safe at home and abroad. CDC has the unique scientific and technical expertise combined with over 60 years of successful global health experience to do this work. CDC monitors disease outbreaks 24/7; maintains rapid response teams that are prepared to deploy anytime, anywhere in case of emergency; supports regional disease detection centers staffed with world-class scientists and possessing labs capable of identifying new/re-emerging pathogens; and develops preparedness and response capacities to contain outbreaks at the source.

New diseases like MERS-CoV can emerge without warning and quickly spread. To protect Americans, CDC is routinely monitoring 30-40 potential public health threats each day, and since 2006, CDC has responded to over 2,000 outbreaks and public health emergencies and has discovered 11 new pathogens and strains of dangerous diseases. However, in the fight against infectious diseases, no nation can stand alone. It can take less than 36 hours for an outbreak to spread from a remote village to any major city in the world. Therefore, protecting Americans means making sure other countries have the knowledge and resources to stop threats before they can spread beyond their borders. Thus, CDC also works to close gaps in global preparedness to keep Americans safe and secure from infectious disease threats. This is accomplished by establishing surveillance systems for priority diseases, responding quickly to outbreaks, improving the management of public health emergencies in the countries where they occur so that diseases do not cross international borders, and by supporting the development of laboratory system and skilled public health professionals who are able to use data to respond when a public health crisis strikes.

In addition to the tragic loss of life, disease outbreaks, both naturally occurring and those resulting from acts of bioterrorism, disrupt global business continuity, decrease tourism and travel, and lower worker productivity. Pandemic threats can disrupt the market for U.S. exports and demand for U.S.-based jobs. Globally, the expected loss from potential pandemics is estimated to be more than $60 billion per year or $6 trillion over the 21st century.[141] At the national level, in 2015, U.S. exports to CDC's 49 priority health security countries exceeded $308 billion and supported more than 1.6 million jobs across all U.S. states in agriculture, manufacturing, mining, oil and gas, services, and other sectors.[142] These exports and jobs may be at risk when outbreaks are allowed to spread unchecked, which could threaten economies. CDC's work to contain these threats protects not only America's health and safety, but its economy.

Investing in global health security programs helps protect Americans from the next, inevitable emerging disease threat and safeguards against future epidemics. In addition to the tragic loss of more than 11,000 lives, the cost of responding to West Africa Ebola outbreak in 2015 was estimated at more than $3.6 billion world-wide[143]. Investments in global preparedness can minimize the impact to Americans as these threats can rapidly destabilize the health, security, and economy of the United States. CDC has helped countries improve their capacity to respond to Ebola, as well as other emerging infectious diseases. For example, after the initial Ebola epidemic in West Africa ended, there were seven flare-ups between March 2015 and March 2016. Liberia and Guinea were able to detect and contain a new outbreak of Ebola significantly faster, saving lives and money. In the final flare up, in March 2016, there were only 13 cases and nine deaths as a result of enhanced disease

[141] GHRF Commission (Commission on a Global Health Risk Framework for the Future). 2016. The neglected dimension of global security: A framework to counter infectious disease crises. http://nam.edu/GHRFreport. doi: 10.17226/21891.
[142] http://online.liebertpub.com/doi/full/10.1089/hs.2017.0051
[143] https://www.cdc.gov/vhf/ebola/pdf/cost-response.pdf

detection efforts, compared to thousands of cases earlier[144]. By supporting improved public health system capacity in places where disease threats may arise, CDC contributes to national security.

CDC's work globally provides for the Common Defense for the Country against infectious disease threats and ensures that these health threats do not breach U.S. borders. No other agency has that responsibility or ability to work along this domestic-to-global health continuum. Everything that CDC does overseas is tied to a U.S. objective—from protecting the United States from health threats to ensuring that lessons learned overseas can be applied here to increase the value and quality of the U.S. public health system. CDC is the global leader in building disease detection and response capabilities in other countries to identify emerging threats, prevent the spread of disease outbreaks, and prepare for and respond to health emergencies. CDC works closely with ministries of health, academic partners, private sector, non-governmental organizations, and faith-based and community-based organizations to develop core response capabilities such as disease surveillance, disease detective training, emergency response, and laboratory systems to stop diseases before they reach our borders. CDC also used supplemental resources to enhance global response capacity by establishing a Global Rapid Response Team (GRRT). In 2016, CDC deployed the GRRT to respond to a deadly outbreak of Yellow Fever in Democratic Republic of Congo and Angola. CDC and partners, utilizing a targeted 'ring' vaccination campaign, demonstrated that fractional dosing is a feasible and effective method to bring an outbreak under control in cases where vaccine supply is limited. The outbreak was brought under control in September 2016—in spite of significant challenges related to the global supply of Yellow Fever vaccine.

In 2014, the United States made a five-year commitment to assist at least 30 countries in meeting the targets of the Global Health Security Agenda (GHSA). With five-year supplemental funding provided in FY 2015, CDC has made major progress to strengthen global health security in 17 Phase I countries.[145] Some examples of notable progress include: All 17 Phase I countries now participate in the basic-level frontline, intermediate, or advanced Field Epidemiology Training Programs, and CDC trained laboratory technicians in all 17 countries. With CDC support, 16 countries established real-time surveillance systems to detect health threats at the national or sub-national level. Similarly, 15 countries have developed improved policies and protocols for public health emergency management—11 countries have activated their EOC for an exercise or a public health response. Nine countries have established new systems for transporting specimen samples to national reference laboratories. CDC worked with six countries to inventory dangerous pathogens and develop plans to manage them in their national laboratory system. The Administration has affirmed its commitment to strengthening global health security through the Global Health Security Agenda (GHSA). At the GHSA Ministerial Meeting in Kampala, Uganda in October 2017, the U.S and other GHSA Member Countries supported extending the Global Health Security Agenda until 2024 in the Kampala Declaration. Extending the GHSA to 2024 will advance implementation of the International Health Regulations (IHR) and achieve the vision of a world safe and secure from infectious disease threats.

Budget Request

CDC's FY 2019 request for Global Disease Detection and Other Programs of **$108,762,000** includes an increase of **$50,957,236** above the FY 2018 Annualized CR level to protect Americans by upgrading public health capacity in countries at risk for uncontrolled outbreaks of infectious diseases. Supporting other nations' ability to identify and contain outbreaks at their source will save lives and money. Better protection from these threats, finding and stopping them at their borders, will protect the health of all Americans. This funding level maintains the level of activities proposed in the FY 2018 Budget, with $58,762,000 (requested with two-year availability) to support activities under the Global Health Security Agenda. These new resources will provide bridge funding for

[144] https://www.cdc.gov/vhf/ebola/pdf/cdcs-ongoing-work.pdf
[145] https://www.cdc.gov/globalhealth/healthprotection/resources/pdf/GHSAReport_final.pdf

CDC to continue work towards the goals of GHSA. To date, CDC's GHSA activities have been supported by supplemental funding provided in FY 2015 that is set to expire at the end of FY 2019. This request will help transition funding for CDC's GHSA activities from supplemental to base appropriations. These funds will allow CDC to continue their commitments to GHSA as planned through the end of FY 2019, and the two-year availability of these resources means that they can be used into FY 2020.

While tremendous progress has been made since GHSA was launched in 2014, considerable work remains. By continuing to leverage a growing multisectoral partnership committed to keeping the world safe and secure from infectious diseases, GHSA will protect Americans from global health threats. External assessments known as Joint External Evaluations have provided a transparent and objective process for measuring progress toward increased global health security capacity. The increased funding will support CDC activities in strategically placed countries to target gaps identified through Joint External Evaluations to implement tools to prevent, detect, and respond rapidly and effectively to disease threats, and advance the technical areas of GHSA. This funding is requested to have a two-year period of availability. Multi-year funding will serve the best interests of the U.S. Government by allowing CDC to conduct due diligence with funding recipients to ensure that funds are spent with maximum oversight and accountability, in accordance with U.S. Government policies. Multi-year funding will also ensure that funds are spent efficiently to maximize programmatic efforts and achieve efficiencies and will ensure sustainable implementation of programs which requires more than a single year for preparation and execution. Multi-year funding will also strengthen capacity for preparedness, prevention, detection, and response and will help to mitigate emergency funding requests for unpredictably timed emergencies and outbreaks.

Global Disease Detection and Other Programs

CDC has established and staffed multiple regional Global Disease Detection (GDD) Centers throughout the world to engage and train other nations in the 24/7 monitoring of outbreaks. These institutions are strategically located globally to rapidly detect and tackle outbreaks, building local response capabilities for disease detection and monitoring. CDC’s investment in GDD centers lessens the U.S. burden to respond to global public health emergencies by creating a network of centers with regional response capabilities that conduct disease surveillance and share information about hospital-acquired infections, acute febrile illness, antimicrobial resistance, bacterial blood stream infections, diarrheal disease, influenza, tuberculosis, and a number of other infectious diseases. GDD Centers work closely with host countries to develop disease detection capabilities that integrate laboratory, clinical, and epidemiological information to rapidly control outbreaks—protecting the health, safety, and security of Americans. Over the past decade, these disease detection centers have assisted in the detection and identification of 11 novel strains and pathogens in the world, as well as provided scientific support for more than 2,000 outbreaks, including SARS, polio, MERS, cholera, Nipah virus, Ebola, and Zika.

By ensuring that these countries make progress towards health security, these activities will build on existing critical investments in global health security and ensure that countries at risk from infectious disease achieve progress toward the following core health security capabilities:

- Maintaining systems to transport specimens for advanced diagnostics to national laboratories from at least 80% of intermediate level/districts within the country
- Developing event-based disease detection system(s) to rapidly detect bio-incidents of public health concerns
- Establishing workforce training programs to build the next generation of disease detectives able to prevent, detect, and respond to biological threats
- Managing dedicated Emergency Operations Centers (EOCs) able to activate a coordinated emergency response or exercise within 120 minutes of the identification of a public health emergency

- Leverage CDC leadership and staff in country offices who are the forward deployed disease detectives who keep the U.S. informed of and engaged in both early detection and containment of overseas health threats
- Strengthen coordination among human and animal health, environmental, and agricultural institutions to prevent, detect, and respond to zoonotic and emerging infectious diseases of greatest national importance

CDC will continue to monitor for global disease outbreaks that put Americans at risk and maintain limited training of frontline disease detectives, scientists, and public health professionals necessary to collect and analyze data.

CDC's Field Epidemiology Training Program (FETP), a country-based program modeled after CDC's own domestic Epidemic Intelligence Service, trains a global workforce of field epidemiologists, or "disease detectives." FETP combines classroom training with extended periods of on-the-job experience and mentoring. The resulting trained epidemiologists are the "boots on the ground" in the effort to identify and contain infectious disease threats. CDC's FETP provides countries with a sustainable protection against global health threats, with approximately 80% of FETP graduates continuing to serve in public health programs in their home countries. In FY 2019, CDC will continue FETP training in order to improve countries' abilities to identify and respond to emerging infectious diseases. These disease detectives, along with the other capabilities developed by CDC, are at the heart of the agency's work to serve as the Common Defense for the Country against health threats.

PUBLIC HEALTH PREPAREDNESS AND RESPONSE

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$1,401.708	$1,395.459	$800.000	-$595.459
FTEs	658	648	636[1]	-12
State and Local Preparedness and Response Capability	$666.634	$663.662	$660.000	-$3.662
Public Health Emergency Preparedness Cooperative Agreement	$658.453	$655.518	$660.000	+$4.482
Academic Centers for Public Health Preparedness	$8.181	$8.144	$0.000	-$8.144
CDC Preparedness and Response Capability	$161.421	$160.701	$140.000	-$20.701
Strategic National Stockpile	$573.653	$571.095	$0.000[2]	-$571.095

[1] FY 2019 FTE estimates may change due to the transfer of the Strategic National Stockpile to ASPR.

[2] Reflects the transfer the Strategic National Stockpile from CDC to ASPR.

Enabling Legislation Citation: PHSA Title II §§ 301, 307, 310, 311, 319, 319C-1, 319D, 319F, 319F-2, 319G*, 351A*, 361, Title XVII*, 2801, 2812 **Enabling Legislation Status:** Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct, Federal Intramural, Cooperative Agreements, including Formula Grants/Cooperative Agreements; and Contracts

The Centers for Disease Control and Prevention's (CDC) Public Health Preparedness and Response programs, in conjunction with HHS and other federal partners, protect the safety, security, and health of Americans during public health emergencies. These emergencies can include chemical, biological, radiological, and nuclear threats, as well as natural disasters and disease outbreaks. The following activities are essential to accomplishing CDC's goal of protecting Americans' health and safety:

- Funding and training state, local, and territorial health department preparedness and response offices
- Preparing for and responding to national and international public health emergencies
- Overseeing and regulating laboratories that work on the most deadly disease-causing agents (bacteria, viruses, and fungi) and poisons
- Quickly identifying disease agents and responding to outbreaks through the Laboratory Response Network

CDC's FY 2019 request of **$800,000,000** for Public Health Preparedness and Response is $595,458,645 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions and elimination of the Academic Centers for Public Health Preparedness from the FY 2018 President's Budget Request. This decrease reflects a reduction of $3,662,254 for CDC's State and Local Preparedness and Response Capability. This amount also represents a decrease of $571,095,175, resulting from the transfer of the Strategic National Stockpile (SNS) from CDC to the Assistant Secretary for Preparedness and Response (ASPR). Transfer of the SNS will be a complex process, and CDC will work with HHS and ASPR to minimize disruption of ongoing operations. Please see the Public Health and Social Services Emergency Fund Congressional Justification for additional information.

The SNS is currently integrated across many of CDC's public health programs and activities.

PUBLIC HEALTH PREPAREDNESS AND RESPONSE

BY THE NUMBERS…

- In 2017, CDC awarded grants totaling $611 million to all 50 states, four large cities and 8 U.S. territories through the Public Health and Emergency Preparedness program. This provided critical resources for state, local, and territorial public health departments to build and strengthen their abilities to effectively respond to public health threats ranging from infectious diseases to natural disasters to radiological events.

- CDC trained 2,232 federal, state, territorial, and local emergency responders in 2016 on how to receive and distribute medical countermeasures. This helps ensure that during a public health emergency, the public has timely access to lifesaving medicines and supplies. During Hurricane Maria, CDC, in collaboration with ASPR, successfully deployed $4.2 million in supplies to Puerto Rico, including 177,000 bottles of water, 42,000 meals ready to eat, and $2.1 million worth of vaccines.

- CDC assigned 71 field staff to 56 different PHEP awardee locations across the nation in 2017. Through this direct relationship with health departments, CDC staff both provide expertise and gain on-the-ground situational awareness before, during, and after public health events where they occur.

- CDC and 50 state health departments conducted 487 operational readiness reviews nationwide, assessing the capacity of the 72 largest metropolitan areas to execute a large-scale response requiring medical countermeasure distribution and dispensing.

- Each year, CDC responds to approximately 20,000 incoming calls from the public, state health departments, clinicians, and hospitals. CDC's watch desk fields calls 24/7 on everything from individuals' health concerns about animal bites and household mold to calls from clinicians on reports of potentially widespread health threats like a meningitis or measles outbreak.

Public Health Preparedness and Response Funding History	
Fiscal Year	Dollars (in millions)
2015	$1,352.551
2016	$1,413.250
2017 Final	$1,401.708
2018 Annualized CR	$1,395.459
2019 President's Budget	$800.000

Strategic National Stockpile 10-Year Funding History	
Fiscal Year	**Dollars (in millions)**
2008	$551.509
2009	$570.307
2010	$595.661
2011	$591.001
2012	$533.792
2013	$477.577
2014	$549.343
2015	$534.343
2016	$569.250
2017 Final	$573.653
2018 Annualized CR	$571.095
2019 President's Budget	$0.000[1]

[1] Reflects the transfer of the Strategic National Stockpile from CDC to ASPR.

State and Local Preparedness and Response Capability Budget Request

CDC's State and Local Preparedness and Response Capability strengthens public health emergency management and response through its Public Health Emergency Preparedness (PHEP) cooperative agreement.[146] The PHEP program ensures states and localities have the resources and skills to respond to public health emergencies regardless of origin. CDC funds all 50 states, 4 directly-funded localities, and 8 territories and freely associated states.

CDC has a wealth of knowledge and expertise in responding to a range of public health emergencies, whether infectious diseases, environmental hazards, or other disasters. CDC uses this expertise and its long-standing relationships with state, local, federal, and private partners to build and sustain an integrated approach to public health emergency preparedness.

Budget Request

CDC's FY 2019 request of **$660,000,000** for State and Local Preparedness and Response Capability is $3,662,254 below the FY 2018 Annualized CR level. At this level, CDC will maintain the elimination of the Academic Centers for Public Health Preparedness as proposed in the FY 2018 President's Budget request. Through the Public Health Emergency Preparedness cooperative agreements, CDC will continue to fund all 62 states, territories, and localities. CDC will work with awardees to prioritize the most important preparedness activities. CDC will continue to support evaluation of awardee activities and assessments such as the Operational Readiness Review and will use these analyses to inform training and guidance to the public health preparedness field.

In discussions with grantees and other stakeholders, CDC continues to work to implement proposed reforms to improve the efficiency of this program, including restructuring around performance and risk. These reforms will allow CDC to allocate resources to all 62 states, territories, and localities according to need.

CDC has developed the expertise and long-term relationships with public health departments required to effectively manage the PHEP program. Since being established in 2002 in response to the September 11, 2001 terror attacks and subsequent anthrax attacks, CDC's PHEP program has partnered with 62 states, local, and territorial public health departments to prepare for, withstand, and recover from potentially devastating public health emergencies. CDC provided more than $12 billion through the PHEP cooperative agreement to public health departments across the nation since 2002. PHEP awardees use these funds to develop and maintain public health emergency management systems, hire experts in public health emergency preparedness and response, distribute and dispense medical countermeasures, and develop laboratory and epidemiologic/surveillance systems. The following table shows key improvements in public health emergency preparedness since 9/11.

Improvements in Public Health Emergency Preparedness[1]		
PHEP-funded jurisdictions:	**Before 9/11**	**2016**
Can mobilize staff during an emergency	19%	100%
Have an Incident Command System with pre-assigned roles in place	5%	100%
Have identified point-of-dispensing (POD) sites	2%	98%
Have sufficient storage and distribution capacity for critical medicines and supplies	0%	100%

[1]http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2017.304038

Supporting state and local health departments through preparedness cooperative agreements is core to CDC's support for these programs. The PHEP program supports development and maintenance of capable, flexible, and adaptable public health systems ready to respond rapidly to ensure Americans are protected.

[146] http://www.cdc.gov/phpr/coopagreement.htm

In 2015, CDC implemented a new Medical Countermeasure Operational Readiness Review (MCM ORR) process to better evaluate state and local capacity and capability to distribute and dispense life-saving medicines and supplies to the right people at the right time during an emergency. This rigorous assessment measures jurisdictional operational readiness—the ability to plan and successfully execute a large MCM response in the event of an intentional release of anthrax or during other public health emergencies, such as an influenza pandemic. CDC and 50 state health departments conducted 487 operational readiness reviews nationwide, evaluating states and local planning jurisdictions in the 72 largest metropolitan areas to identify strengths and areas for improvement. Following the initial ORRs, CDC refined the process and began a new round of ORRs in November 2017 and expects to have comprehensive data to evaluate in 2019. This MCM ORR work is largely funded through SNS.

CDC strengthens public health preparedness of state, local, and territorial health departments through assignment of field-based staff. Through this direct interaction with health departments, CDC ensures the nation's public health system is prepared to respond to and recover from a public health event or emergency. Field staff include:

- 35 Career Epidemiology Field Officers in 29 jurisdictions to support development of surveillance, outbreak response, and community assessment capabilities.
- 21 Preparedness Field Assignees in 18 jurisdictions to support development of multiple preparedness capabilities based on specific jurisdictional needs.
- Six Temporary Epidemiology Field Assignees in six jurisdictions to support response to Ebola and other epidemic diseases.
- Three public health advisors in three jurisdictions and seven MCM specialists in seven regions to support development of MCM and other public health preparedness capabilities.
- Three informatics field assignees to help enhance state informatics and health information technology capabilities have been placed in Kentucky, North Carolina, and South Dakota for up to two years to advance informatics initiatives.

In 2017, CDC also awarded $6 million to 45 Level 1 and Level 2 chemical laboratories to replace critical laboratory equipment needed to meet Laboratory Response Network (LRN) requirements for toxic metal testing. The PHEP program also allows CDC to provide expertise and support to state and local health department efforts to prepare for and respond to public health emergencies, including those requiring coordinated healthcare and public health responses. For example, during the 2016-2017 Zika response, CDC:

- Worked with partners to develop draft guidance including CDC’s Zika interim response plan.
- Deployed 40 preparedness staff to support local response efforts in American Samoa, United States Virgin Islands, Puerto Rico, and several domestic jurisdictions.
- Awarded $50 million in state and local Public Health Preparedness and Response Zika funding for 53 jurisdictions and funding for six partner organizations to support staffing contracts in local jurisdictions.
- Conducted eight national calls and two national webinar series with state, local, tribal, and territorial health departments, and 57 calls with national partners.

Additional recent examples of how CDC provides expertise and support to state and local health department efforts to prepare for and respond to public health emergencies include:

- Since September 1, 2017, CDC regularly communicated with the health officials in Puerto Rico and the U.S. Virgin Islands to plan for restoration of public health services and provide technical assistance in response to Hurricanes Irma and Maria.
- In 2017, CDC supported state and local public health preparedness planning for a radiation/nuclear event; activities included conducting a national webinar followed by focused consultation conference

calls with Guam, Northern Mariana Islands, and Hawaii to discuss specific jurisdictional priorities and concerns.
- CDC works closely with PHEP recipients to improve medical countermeasure (MCM) operations, including planning a 2018 MCM Summit, providing monthly training opportunities, and demonstrating how community planners can use tools such as the "Pandemic Influenza Electronic Exercise Tool" in their MCM planning and exercising.

In FY 2019, CDC's project officers and PHEP program experts will work closely with funded state, local, and territorial health departments to:

- Represent state and local needs within CDC's Incident Management System; this system is activated during public health emergencies to bring together subject matter experts from across the agency to facilitate efficient response activities and communication.
- Collaborate with state and local health departments during public health emergencies to ensure effective, efficient, and coordinated response activities.
- Identify opportunities for continued program improvement during public health emergencies, including using lessons learned during public health responses, such as Ebola and Zika, to strengthen communication between CDC and key stakeholders.
- Sustain the day-to-day public health impact of the PHEP program by providing guidance and technical expertise to state and local health departments and ensuring infrastructure such as emergency operations centers, laboratories, and communication systems is maintained.
- Evaluate awardee progress in addressing gaps identified through the MCM operational readiness review process and ensure awardees continue to improve their MCM distribution and dispensing capacity.
- Oversee CDC's PHEP awardee programs to ensure accountability and effective use of funds and performance monitoring and reporting.
- Provide planning resources to enable awardees to better integrate the access and functional needs of at-risk individuals in public health, healthcare, and behavioral health response strategies.

CDC Preparedness and Response Capability Budget Request

CDC's Preparedness and Response Capability supports critical infrastructure and research to facilitate prevention of and rapid response to public health emergencies by:

- Regulating and monitoring possession, use, and transfer of potentially dangerous biological agents and toxins.
- Activating CDC's response system and centralizing responses in the Emergency Operations Center (EOC) to ensure effective and efficient preparedness and response operations.
- Developing standard Laboratory Response Network (LRN) protocols; and providing training and quality assurance for testing biological and chemical threat agents.
- Advancing the development of a surveillance system for the timely exchange of syndromic data called the National Syndromic Surveillance Program (NSSP).

Budget Request

CDC's FY 2019 request of **$140,000,000** for CDC Preparedness and Response Capability is $20,701,216 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reduction in CDC Preparedness and Response from the FY 2018 President's Budget Request. At this level, CDC will focus on the Select Agent Program and mission critical activities. In order to maintain the critical preparedness and response infrastructure, CDC may reduce ongoing core preparedness activities (e.g., preparedness exercises, timeliness of reporting critical information, applied research for first responders, select agent training, etc.) and prioritize remaining funds to address the most urgent needs.

Regulation of Biological Agents and Toxins

CDC jointly manages the Federal Select Agent Program (FSAP) with the United States Department of Agriculture to regulate the possession, use, and transfer of biological pathogens and toxins that have the potential to pose a severe threat to human, animal, and/or plant health, as well as animal and plant products. CDC is responsible for regulation of these infectious agents which affect human health in the United States. Common examples of select agents and toxins include anthrax, bubonic plague, smallpox, and ricin. Scientific research on these agents and toxins leads to discoveries that saves lives and protects the health, safety, and security of the American people. The Select Agent Program ensures that laboratory work with these dangerous agents and toxins is conducted safely and securely.

CDC also regulates importation of infectious agents which affect human health in the United States. CDC's Import Permit program ensures laboratories importing infectious biological agents have appropriate biosafety measures to prevent introduction or spread of these biological agents into the United States.

CDC Select Agent Program

Laboratories seeking to work with select agents and toxins must register with the Federal Select Agent Program (FSAP). CDC routinely inspects registered laboratory facilities to ensure compliance with select agent regulations. These inspections allow CDC to confirm appropriate biosafety and security measures are in place, including that laboratorians are adequately trained to implement plans and procedures for containment of select agents at each facility. CDC will maintain continuous quality improvement activities to include identifying variation and vulnerabilities in its inspection processes and determining best practices, and strive to maintain the number of inspections performed.

Import Permit Program

The CDC Import Permit Program (IPP) regulates importation of infectious biological agents that cause disease in humans into the United States to ensure they are handled appropriately. Prior to issuing import permits, IPP

reviews all applications to ensure facilities have appropriate biosafety measures in place for working with these imported materials. As needed, the IPP also inspects applicants to ensure that the facilities implemented appropriate biosafety measures for the infectious biological agent, infectious substance, or vector (e.g., mosquitoes, rodents, etc.) to be imported.

Through these two programs, CDC:

- Develops, implements, and enforces the select agent regulations to ensure research and other activities with select agents and toxins are conducted as safely and securely as possible.
- Conducts inspections and approves registration for the nearly 300 facilities that work with select agents and toxins to make certain they have appropriate measures in place to prevent unauthorized access, theft, loss, or release.
- Approves individual access to select agents and toxins following security risk assessments performed by the FBI. (This helps prevent the misuse of these agents from individuals planning to do harm with them.)
- Receives reports of theft, loss, or release from facilities.
    - These may include laboratory-acquired infection, exposure (e.g., a needle-stick, spill, or animal bite), or the loss of select agent inventory.
    - FSAP investigates each report, ranging from follow up to ensure proper actions are taken, to notifying appropriate authorities and identifying ways to prevent incidents from happening again.
- Maintains a national database that enables the United States government to maintain awareness of facilities that possess these potentially dangerous materials.

In FY 2019, CDC will continue to provide leadership in promoting and ensuring the safe and secure handling of select agents and toxins, monitor imports of select agents and toxins into the United States, and sustain oversight of laboratories working with select agents and toxins.

Emergency Management Program

CDC's Emergency Management Program (EMP) is responsible for the overall coordination of CDC's public health preparedness, response, and recovery activities. The EMP works by integrating public health practice with emergency management principles. One way to demonstrate effectiveness is through the operation of the Emergency Operations Center (EOC), where highly trained experts track information that could indicate a pending public health threat, prepare for known and unknown events, and provide real-time, coordinated response capability to public health emergencies. Even when there is no specific threat, the EOC has dedicated staff monitoring health reports and fielding calls from the public, physicians, and state and local authorities at all times.

Since 2003, CDC has activated its emergency response system for more than 60 public health emergencies, including hurricanes, foodborne disease outbreaks, the H1N1 influenza pandemic, the Haiti earthquake and cholera outbreak, and outbreaks of Ebola and Zika. CDC's response system has been activated continuously since December 2011, and as the program has matured CDC's capacity to respond to simultaneous emergencies has evolved. For example, in early 2016, CDC was activated for four concurrent public health emergencies: Flint, Michigan Water Contamination; Ebola; Zika; and Polio. In addition to emergencies, the EOC may also be activated for planned events (e.g., presidential inaugurations and Olympics taking place in the United States) and to monitor for incidents that may affect the public's health. In FY 2019, CDC will protect America by:

- Deploying scientific experts in response to public health emergencies.
- Coordinating EMP response activities.
- Providing resources to state and local public health departments.

- Coordinating risk communications for physicians, states, cities, and the general public that are timely, accurate, consistent, and actionable.
- Working with ministries of health and the World Health Organization to identify, detect, and respond to health threats by building EMP capability.

Laboratory Response Network Assay Development and Proficiency Testing

The Laboratory Response Network (LRN) protects the country against infectious disease threats through early and definitive detection, enabling response efforts to contain small emergencies before they become big emergencies. CDC supports the LRN by providing standard assays and protocols, training, proficiency testing exercises, and quality assurance for testing biological and chemical threat agents. Over the last four years, CDC:

- Increased the number of assays to detect and characterize threat agents. Six new assays were developed and deployed to LRN-Biological (LRN-B) laboratories in response to threat analyses or emerging infectious diseases such as Middle East Respiratory Syndrome coronavirus (MERS-CoV) (2013), Ebola virus (2015), and Zika virus (two assays, 2016), *Rickettsia* (causing Rocky Mountain spotted fever, 2017), and *Variola* virus (causing smallpox, 2017).
- Evaluated assays for effectiveness. Assays may be developed by CDC or by partners outside of CDC (e.g., Department of Homeland Security and Department of Defense). CDC evaluates these assays to determine if they are applicable for use in the LRN-B.
- Deployed assays, such as an improved test for smallpox (2017) and a new test for Rickettsia (2017), into the LRN-B for use by participating laboratories. Deployment includes providing reagents, procedures, training, and technical guidance as well as proficiency testing.

The LRN-B is uniquely positioned to provide a unified network of integrated laboratories that can confidently and consistently detect biothreat agents as well as emerging infectious diseases. In FY 2019, the LRN-B will continue to develop and deploy diagnostic assays to enhance public health preparedness.

National Syndromic Surveillance Program

CDC's National Syndromic Surveillance Program (NSSP)[147] develops and deploys a syndromic surveillance system that enables the timely exchange of health data in near real time. Through NSSP, CDC funds state and local health departments to conduct syndromic surveillance, which includes collection and analysis of several data sources: patient information from emergency departments, urgent care, hospitals; as well as pharmacy and laboratory data to detect and characterize aberrations meriting further public health investigation or response. This surveillance system protects the nation by providing timely and accurate information to leaders at the local, state, and national levels so that timely decisions on effective interventions are possible.

NSSP includes two key components that advance syndromic surveillance:

- The National Syndromic Surveillance Program Community of Practice: members include NSSP-funded grantees, unfunded states and jurisdictions, public health practitioners, CDC programs, other federal agencies, partner organizations, hospitals, healthcare professionals, and academic institutions that collaborate to advance the science and practice of syndromic surveillance. NSSP's Community of Practice provides a collaborative environment in which states can use pre-determined definitions or create ad-hoc definitions and algorithms that are used to help determine if there are unusual changes in trends that may be associated with diseases such as MERS-CoV, enterovirus (EV-D68), Chikungunya, Ebola, and Zika. These trends can also be monitored in near real time when there are known events of public health importance.

[147] http://www.cdc.gov/nssp/index.html

- The BioSense Platform: a suite of analytic tools that includes ESSENCE, SAS, and R Studio Professional (a programming language for statistical computing and graphics) and is based in the GovCloud environment, providing broader, more efficient access. The platform provides users with state-of-the-art tools to analyze, visualize, and use the data jurisdictions contribute to the platform.

CDC exceeded its FY 2016 goal of receiving data from 55% of emergency department visits across the United States. In 2017, CDC refined both the definition of an active facility and the method used to account for them in order to gain a more accurate total of emergency departments that provide data to the BioSense Platform. We anticipate this will initially lower the total overall visits recorded in the Platform, but will result in the data providing a more accurate picture of the nation's health indicators while allowing CDC to identify gaps in national coverage, target sites within these areas, and conduct active outreach to bring additional facilities onboard.

Continued investments in the use of syndromic surveillance strengthens the ability of all states to detect, respond to, and manage outbreaks and other public health emergencies while also contributing to situational awareness at regional and national levels. One example of improving situational awareness is the response to the current opioid crisis. CDC's National Center for Injury Prevention and Control opted to use NSSP as the surveillance source for gathering timely data related to opioid use and overdoses. This effort allows state and local health officials to provide targeted response efforts, while providing federal health officials with a national picture of the crisis' impact and the ability to target programs and resources to the hardest hit regions. Choosing to use NSSP prevented the need to create another surveillance tool, saving money at both the state and national levels, and allowing states to avoid duplicate data collection.

NSSP Awards[1]

(dollars in millions)	FY 2015 Actual	FY 2016 Final	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Number of Awards	34	31	31	31	31
- New Awards	0	31	0	0	0
- Continuing Awards	34	0	31	31	31
Total Awards	$6.695	$6.564	$6.564	$6.564	$6.564

[1] These funds are not awarded by formula.

Strategic National Stockpile Budget Request

The Strategic National Stockpile (SNS)[148] manages and delivers life-saving medical countermeasures (MCMs)[149] during a public health emergency. It is the largest federally owned repository of pharmaceuticals, critical medical supplies, Federal Medical Stations (FMS),[150] and medical equipment available for rapid delivery to support federal, state, and local response to health security threats. If a biological, chemical, radiological, or nuclear event were to occur on United States soil today, the SNS would be the only federal resource readily available to respond once state and local MCM supplies are depleted.

Budget Request

The FY 2019 Budget transfers the SNS from CDC to the Assistant Secretary for Preparedness and Response (ASPR). Please see the Public Health and Social Services Emergency Fund Congressional Justification for additional information.

[148] http://www.cdc.gov/phpr/stockpile/stockpile.htm
[149] http://www.fda.gov/EmergencyPreparedness/Counterterrorism/MedicalCountermeasures/AboutMCMi/ucm431268.htm
[150] http://blogs.cdc.gov/cdcworksforyou24-7/2012/11/up-and-running-in-48-hours-how-federal-medical-stations-help- people-after-natural-disasters-like-hurricane-sandy/

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CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$113.570	$112.799	$155.000	+$42.201
PPHF	$160.000	$144.464†	$0.000	-$144.464
Total Request	**$273.570**	**$257.263**	**$155.000**	**-$102.263**
FTEs	2,169	2,059	2,059	0
Public Health Leadership and Support	$113.570	$112.799	$155.000	$42.201
Preventative Health Block Grant Program (PPHF)	$160.000	$144.464†	$0.000	-$144.464

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

Enabling Legislation Citation: PHSA Title II §§ 301, 304, 306*, 307, 308, 310, 311, 317, 317F*, 319, 319A, 319D, 322, 325, 327, 352, 361–369, 391*,Title XVII*, 2821

Enabling Legislation Status: Permanent Indefinite

Authorization of Appropriations for FY 2019: Indefinite; Expired/Expiring noted with *

Allocation Methods: Direct Federal/Intramural, Contracts, Competitive Grants/Cooperative Agreements

CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT

BY THE NUMBERS…

- 287 Public Health Associate Program (PHAP) associates work in public health organizations in 44 states; Washington, DC; Puerto Rico; U.S. Virgin Islands, and Guam, providing jobs to recent college graduates and increased delivery of essential public health services to the public every day.
- 90 PHAP associates deployed to assist with the Zika response in Puerto Rico, CDC's Emergency Operations Center in Atlanta, and other field locations.
- Through the National Leadership Academy for the Public's Health, CDC provided leadership training to 425 leaders from diverse sectors since 2012 to use multi-sectored approached to improving health within their communities. Projects have included systems and environmental change to tackle substance abuse, community resilience to respond to emergency events, and partnerships to address community health and realize health equity.
- 48,440 public health professionals trained since 2011 to use law as a public health tool. Crucial analyses of laws informed federal, state, tribal, local, and territorial decision making for addressing resurging and emerging health issues [1].
- Nearly 70% of U.S. population served by an accredited health department as of December 2017 [2].
- More than 90% of accredited health departments report experiencing benefits such as stimulation of quality and performance improvement, increased accountability and transparency, and improved management processes. For example, the Arizona Department of Health Services, which was accredited in September 2017, used quality improvement to reduce the turnaround time for mail-in requests of vital records from 27 days to fewer than 7 days [3].
- CDC INFO answers 300,000 inquiries a year, on topics including Zika, Ebola, HIV/AIDS, measles, seasonal flu, harmful algal blooms, travel vaccines, and foodborne outbreaks [4].

References:

[1] Public Health Accreditation Board. Number of Health Departments Accredited through the Public Health Accreditation Board Now Surpasses the 200 Mark. Available at http://www.phaboard.org/number-of-health-departments-accredited-through-the-public-health-accreditation-board-now-surpasses-the-200-mark/. Updated November 21, 2017

[2]. Kronstadt J, Meit M, Siegfried A, Nicolaus T, Bender K, Corso L. Evaluating the Impact of National Public Health Department Accreditation—United States, 2016. MMWR 2016;65:803–6. DOI: http://dx.doi.org/10.15585/mmwr.mm6531a3

[3] Internal source. Centers for Disease Control and Prevention. Advancing Public Health: The Story of the National Public Health Improvement Initiative. Atlanta, GA: US Department of Health and Human Services; 2017. Available at https://www.cdc.gov/stltpublichealth/docs/nphii/Compendium.pdf

[4] Centers for Disease Control. About CDC-INFO. Available at https://www.cdc.gov/cdc-info/about.html. Updated March 27,2017.

CDC-Wide Funding History	
Fiscal Year	Dollars (in millions)
2015 (BA)	$113.570
2015 (PPHF)	$160.000
2016 (BA)	$250.977
2016 (PPHF)	$160.000
2017 Final (BA)	$113.570
2017 Final (PPHF)	$160.000
2018 Annualized CR (BA)	$112.799
2018 Annualized CR (PPHF)†	$144.464
2019 President's Budget (BA)	$155.000
2019 President's Budget (PPHF)	$0.000

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

CDC's FY 2019 request of **$155,000,000** for CDC-wide Activities and Program Support is $102,262,763 below the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions from the FY 2018 President's Budget Request as well as continues the elimination of the Preventive Health and Health Services Block Grant, as proposed in the FY 2018 President's Budget Request. The remaining activities support mission-critical activities and programs across CDC and reduced communications materials. In FY 2019, CDC is requesting $50,000,000 for business services. This one-time investment will fill critical gaps in business services that support CDC's research and programmatic activities. These funds will be deposited into the Working Capital Fund reserve.

Public Health Leadership and Support Budget Request

The Public Health Leadership and Support line funds:

- CDC's Office of the Director
- Urgent and emergent public health response activities
- Offices that provide agency-wide support and leadership
- Technical support to health officials in the field

These funds are essential to CDC's ability to manage with efficiency, transparency, and accountability. In addition to day-to-day agency management, funds are used to provide technical support to the field. Some offices providing agency-wide support are also partially or fully funded by CDC's Public Health Scientific Services budget.

Budget Request

CDC's FY 2019 request of **$155,000,000** for Public Health Leadership and Support is $42,201,254 above the FY 2018 Annualized CR level. The FY 2019 request carries forward the proposed reductions from the FY 2018 President's Budget Request. CDC will continue to support state, tribal, local and territorial (STLT) health departments in improving delivery of public health services, as proposed in the FY 2018 President's Budget.

Office of the Director

Funds requested in FY 2019 will support CDC's public health leadership to the nation through several offices that provide services agency-wide. The Office of the Director also manages funding for urgent and emergent threats.

Office for State, Tribal, Local and Territorial Support (OSTLTS)

CDC supports strong health departments, the Nation's front line of public health defense. Every day, thousands of health departments are working to provide accessible, timely, quality, and sustainable public health services to protect Americans' health and safety. These health departments need tools, resources, and a sustainable, well-trained workforce to work better, faster, smarter. OSTLTS assists health departments in improving delivery of services to the public, reducing costs, and improving health through public health strategies that foster innovation.

CDC's OSTLTS improves the capacity of state, tribal, local, and territorial public health departments to manage and improve performance and deliver high-quality programs and services to protect the public's health by:

- Building capacity to use public health law to protect and improve public health.
- Building the public health workforce through the Public Health Associate Program and other initiatives.
- Helping health departments improve their performance and accountability based on national standards and advance toward national accreditation.
- Providing consultation and technical support to assist health officers with addressing specific high-priority needs in their jurisdictions.
- Collaborating with national public health partners on system-wide improvements for more efficient, effective, and sustainable delivery of public health services.
- Managing the CDC/ATSDR government-to-government Tribal Advisory Committee and coordinating tribal consultations to improve the health of American Indians and Alaska Natives.
- Providing ready-to-use tools and surge capacity for supporting health departments in protecting the public's health during emergencies.

Office of the Chief of Staff

The Office of the Chief of Staff provides support to CDC's director and manages all executive secretariat functions across CDC. The office reviews, analyzes, and clears policy documents and CDC director correspondence. The office works with Government Accountability Office (GAO) and Office of the Inspector General (OIG) staff to facilitate GAO/OIG audits and evaluations, including entrance conferences, pre-briefs, information requests, exit conferences, and review/comment on draft reports.

Laboratory Science and Safety Office

CDC is strengthening laboratory safety practices across the agency through training, oversight, and facilitating a culture of safety. This office, led by the Associate Director for Laboratory Science and Safety, provides high-level oversight and coordination of critical laboratory science policies and operations, particularly those associated with laboratory safety and quality management programs. The office is working with CDC's laboratory scientists to build a strong culture of laboratory science and safety through leadership, collaboration, training, and continuous quality improvement.

Communications Office

The Communications Office provides support to all CDC programs to provide accessible, accurate, relevant, and timely health information and interventions to protect and promote the health of individuals, families, and communities.

Policy Office

The Policy Office provides agency-wide support to:

- Lead CDC's public health and healthcare collaboration activities.
- Monitor public health implications at federal, state, and local levels and disseminate key information inside and outside CDC.
- Build relationships with external organizations to advance public health.

Science Office

The Science Office provides leadership in advancing the quality and integrity of CDC science, and provides agency-wide leadership on scientific and medical matters. The Science Office:

- Develops policies related to intramural and extramural research to ensure CDC science activities and staff maintain the highest standards of scientific integrity and ethics.
- Provides oversight of scientific clearance of CDC publications and promotes best practices in external peer review.
- Promotes and strengthens a common scientific culture for enhanced information exchange internally and externally.

Office of Minority Health and Health Equity

The Office of Minority Health and Health Equity includes the Office of Women's Health and the Diversity Management Program, and provides leadership for CDC-wide policies, strategies, planning, and evaluation to eliminate health disparities.

Office of Equal Employment Opportunity

The Office of Equal Employment Opportunity provides agency leadership on all matters related to equal employment opportunity (EEO), alternative dispute resolution, and reasonable accommodations. This office:

- Provides oversight for EEO complaints processing.
- Ensures alternative dispute resolution is available to all CDC and ATSDR employees for resolving conflict or disputes informally and confidentially.
- Maintains a work environment in which persons with disabilities receive full and fair consideration for any job for which they apply.
- Provides reasonable accommodation to employees with disabilities in order to perform their essential job functions.

Office of Infectious Diseases

The Office of Infectious Diseases (OID) provides agency-wide leadership to promote and facilitate science, programs, and policies to reduce the burden of infectious diseases in the United States and globally. OID works to:

- Support internal and external partners to advance infectious disease prevention programs and priorities.
- Provide national and global leadership and expertise in preventing and controlling infectious diseases by developing a strong foundation for advancing public health research.
- Build capacity with partners throughout the world to protect Americans at home and abroad.
- Provide strategic leadership to and enhance coordination among CDC's three infectious disease national centers.

CDC's infectious disease national centers provide national and global leadership and expertise in preventing and controlling infectious diseases, ensuring a strong foundation for advancing public health research and building capacity with partners throughout the world. OID's national centers include:

- National Center for Emerging and Zoonotic Infectious Diseases
- National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
- National Center for Immunization and Respiratory Diseases

Office of Noncommunicable Diseases, Injury, and Environmental Health

The Office of Noncommunicable Diseases, Injury, and Environmental Health (ONDIEH) provides agency-wide strategic direction and leadership for the prevention of noncommunicable diseases, injury, disabilities, and environmental health hazards in the United States and globally. This office works to:

- Strengthen prevention of noncommunicable disease, injuries, and disabilities.
- Enhance integration and inclusion of noncommunicable diseases, injuries, disabilities, and environmental health across CDC and within the larger public health community.
- Increase collaboration and innovation across noncommunicable diseases, injury prevention, disabilities, and environmental health.

ONDIEH's national centers provide leadership and expertise in preventing and controlling noncommunicable diseases, ensuring a strong foundation for advancing public health research, and building capacity with partners. ONDIEH's national centers include:

- National Center on Birth Defects and Developmental Disabilities
- National Center for Chronic Disease Prevention and Health Promotion
- National Center for Environmental Health/Agency for Toxic Substances and Disease Registry
- National Center for Injury Prevention and Control

Office of the Chief Operating Officer

Business services offices support CDC by administering the agency's budget, grants and contracts, facilities, physical security, workforce health and wellness, human resources, and information technology programs. The Office of the Chief Operating Officer (OCOO) oversees many functions supported by the Working Capital Fund. The Public Health Leadership and Support budget funds the Office of Appropriations and the OCOO Office of the Director.

CDC Washington Office

The CDC Washington Office (CDC/W) provides support to CDC on legislative and policy issues. CDC/W also represents the agency in Washington, D.C., to the Department of Health and Human Services, other agencies, and the Washington, D.C. policy community. CDC/W is the main point in CDC for receiving requests for information and assistance from the Congress. CDC/W works closely with CDC's Office of the Director, program leadership, policy offices, and CDC's Office of Appropriations to respond to those requests.

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BUILDINGS AND FACILITIES

(dollars in millions)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Budget Authority	$10.000	$9.932	$30.000	+$20.068

Safe, secure, and fully operational laboratories, buildings, and facilities equip CDC with the space needed to protect Americans from new disease threats and address evolving public health needs. Buildings and Facilities funds replace, maintain, and improve existing facilities as well as construct new facilities to meet CDC's mission. CDC's facilities support the dedicated personnel who work to protect Americans from health threats every day.

CDC's building repair and improvement needs are nationwide—covering CDC-owned facilities in seven states and San Juan, Puerto Rico. Investments in facility repair and improvement remain relatively consistent while the gross square footage of CDC's assets has nearly doubled since 2000. The current backlog of maintenance and repair exceeds $149 million and continues to grow. Failing equipment in laboratories, frequent water leaks, and other urgent and costly emergency repairs are a result of aging facilities. Unexpected emergencies like these hinder CDC's ability to address the growing backlog of routine maintenance and repair and often halt laboratory and mission support work.

CDC BUILDINGS AND FACILITIES

BY THE NUMBERS…

- **7.1 million** gross square feet mission critical space
- **3.1 million** gross square feet of BSL2/BSL3/BSL4 infectious disease laboratories
- **193** owned assets—166 buildings and 27 support structures
- **71** facilities over 40 years old
- **$3.8 billion** functional replacement value

CDC's ability to respond to infectious disease threats depends upon operational readiness of laboratories. Laboratory operations are demanding on building systems, causing more rapid deterioration than for a comparable office building. The cost to maintain laboratory space is approximately 40% higher per square foot than office space.

CDC's current High Containment Laboratory (HCL) space was constructed in 2005 for $214.3 million, equivalent to $300.0 million in 2017 dollars[151]. The CDC critical facilities plan includes a new HCL laboratory building which is not yet funded. The existing HCL's Building Automation System (BAS) is of particular concern, since it is estimated that by 2024, the BAS could potentially fail putting the safety of staff and animals in the building at risk. Without investments in repair and improvements, HCL controls will experience progressive failures over time, potentially resulting in lengthy shutdowns.

Examples of CDC's ongoing public health activities with pathogens that require high containment laboratory capacity include:

- Risk assessment studies to determine the pandemic potential of emerging influenza viruses, H5Nx, H7N9, H3N2v, and assessments of candidate vaccine viruses.
- Work in support of the American and global smallpox research agenda, critical since CDC's HCL space is one of only two laboratories in the world where smallpox research can be conducted.
- Ensuring U.S. preparedness and response capacity to illnesses caused by hemorrhagic fever viruses such as Ebola, Marburg, Nipah, Rift Valley fever, Crimean-Congo hemorrhagic fever, and Lassa fever viruses, and other category A select agents.
- Support for work with more than 30 highly dangerous pathogens, including hantavirus, endemic in the United States and for which reports of prevalence have increased in recent years.

Buildings and Facilities Funding History	
Fiscal Year	**Dollars (in millions)**
2015	$10.000
2016	$10.000
2017 Final	$10.000
2018 Annualized CR	$9.932
2019 President's Budget	$20.000

Budget Request

CDC's FY 2019 request of **$30,000,000** for Buildings and Facilities is $20,067,910 above the FY 2018 Annualized CR level. Buildings and Facilities funding supports capital projects, such as new construction and major renovations to existing buildings, as well as repair and improvements (e.g., laboratory ventilation upgrades, structural repairs, roof replacements, and electrical and mechanical repairs) necessary to restore, maintain, and improve CDC's assets. Separate from CDC's buildings and facilities funding, capital leases, utilities, and operations and maintenance contracts for CDC-owned buildings and facilities are funded through the Working Capital Fund.

CDC facilities are the stronghold for the nation's defense against health threats, and these facilities are deteriorating. The FY 2019 request of $30,000,000 will repair and improve active, owned buildings. The current

[151]Cost includes design, construction, and equipment for HCL and ancillary West Central Utility Plant.

backlog in maintenance and repair exceeds $149 million. Significant investment in Buildings and Facilities will protect these assets through a rigorous, preventive maintenance program. This investment is critical to keeping CDC facilities fully functional and prepared to respond to the next disease threat to our nation.

CDC prioritizes repair and improvement projects by need and available funding. Fire, life safety, and emergency projects are high-priority, and several high priority projects remain undone. Aging infrastructure in laboratory buildings at all locations requires major mechanical, electrical, and plumbing system replacements. Equipment in these systems will be replaced with the FY 2019 request; examples include: built-in laboratory equipment, roofs, chillers, and boilers. Building support systems and components need to be replaced or repaired including elevators, foundations, fire alarm systems, and heating, ventilation, and air conditioning systems.

With the request of $30,000,000 in FY 2019, CDC will:

- Execute fire, life safety, and mission support projects.
- Reduce the current backlog of maintenance and repair.
- Replace technologically antiquated mechanical and electrical infrastructure.
- Improve campus energy and water efficiency in alignment with federal requirements.

The budget request will support critical program support projects and maintenance such as:

- Renovate components of the BAS supporting CDC’s high containment laboratory, determined by the results of the BAS risk assessment performed in FY 2018. The FY 2019 request will not fund the entirety of the BAS renovation, but will begin critical next steps with investments necessary to keep CDC’s high containment laboratory operational.
- Replace the roof on Building 17 on CDC's Roybal campus. Building 17 is CDC’s Infectious Disease Laboratory, a 350,000 gross square feet facility with over 180,000 square feet of BSL-2, BSL-3, and BSL-3E laboratory space. Completed in 2001, the Building 17 roof had an expected lifetime of 15 years and was slated for replacement in 2016. Minor leaks have begun to occur with regularity. A major leak would interrupt essential infectious disease research.
- Modify CDC’s newborn screening laboratory to allow expansion of blood spotting and cell culture procedures to create new newborn screening quality assurance materials. The CDC Newborn Screening Quality Assurance Program is the only comprehensive quality assurance program for newborn screening laboratories in the world.
- Replace and upgrade electrical infrastructure at the Chamblee campus including: power distribution units, uninterruptible power supply, stand-by power controls, switchgear to the main data center, and switchgear at main utility plant.
- Replace mission critical steam sterilizers in the environmental health laboratory buildings.
- Upgrade the fire alarm system in a chronic disease research support building.
- Replace the power distribution system on the Lawrenceville campus; existing service to CDC's Lawrenceville Campus appears to have been constructed in the early 1970s. According to a 2010 evaluation report, 8 of the existing 10 overhead conductors show visual defects or need to be replaced due to age. These components are at the end of their useful life, and the system is at risk of failure.
- Repair chilled water lines, which are essential to providing cooling to CDC’s main specimen repository. The repository houses over 6 million research-related samples.

Buildings and Facilities Carryover Amounts[1, 2]	
Fiscal Year	Dollars (in millions)
Available until Expended	$2.500
FY 2015 (Expires end of FY 2019)	$0.000
FY 2016 (Expires end of FY 2020)	$0.536
FY 2017 (Expires end of FY 2021)	$0.100
FY 2018 (Expires end of FY 2022)	$0.500
Repair and Improvement Total	**$3.636**

[1] Amounts are estimated based on data available December 18, 2017.

[2] An additional $16.1M is held for an Underground Mining Research Facility, and $1.9M for other capital projects.

Underground Mining Research Facility

As directed in the FY 2017 Consolidated Appropriations Act, CDC is proceeding with acquiring a replacement underground mining research facility to support mining research capabilities no longer available at the former NIOSH Lake Lynn facility. CDC holds prior year Buildings and Facilities funds for the purchase of the replacement site; however, these resources will not fully fund the replacement laboratory. CDC is currently working with GSA to determine the suitability of potential sites and will assess environmental impacts for the candidate site. Pending available resources for site purchase, design, and construction, a site may be available for purchase in early FY 2019, at which point occupational safety and health activities are proposed to be consolidated into NIH.

Nonrecurring Expenses Fund

Cincinnati

CDC and GSA issued a site solicitation in July 2016 for a new facility to consolidate NIOSH Cincinnati Research Facilities into one central location. This project is supported through HHS' Nonrecurring Expenses Fund. A potential site has been identified and environmental impact study assessment activities are underway. Site purchase is planned for summer 2018, subject to availability of funds. Design and construction are anticipated to begin in FY 2019, at which point occupational safety and health activities are proposed to be consolidated into NIH.

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WORKING CAPITAL FUND

CDC FY 2019 WORKING CAPITAL FUND TABLE[1]

(dollars in thousands) CDC Programs	FY 2018 Estimate	FY 2019 Estimate
Immunization and Respiratory Diseases	$52,085	TBD
HIV/AIDS, Viral Hepatitis, STI and TB Prevention	$50,272	TBD
Emerging and Zoonotic Infectious Diseases	$71,445	TBD
Chronic Disease Prevention and Health Promotion	$39,403	TBD
Birth Defects, Developmental Disabilities, Disability and Health	$10,776	TBD
Environmental Health	$22,405	TBD
Injury Prevention and Control	$12,186	TBD
Public Health Scientific Services	$54,130	TBD
Occupational Safety and Health	$35,169	TBD
Global Health	$39,008	TBD
Public Health Preparedness and Response	$49,343	TBD
CDC Wide Activities	$28,655	TBD
CDC Program Total	**$464,877**	**TBD**
Other CDC Funding Sources		TBD
Agency for Toxic Substances and Disease Registry	$8,656	TBD
Energy Employees Occupational Illness Compensation Program Act (EEOICPA)	$2,858	TBD
Vaccines for Children	$26,009	TBD
World Trade Center	$8,771	TBD
PEPFAR	$31,287	TBD
Other Reimbursable Income	$14,645	TBD
Other CDC Programs Contributions Total	$92,226	TBD
Total CDC Programs Contributions	$557,103	TBD

[1] Estimates are based on the WCF Governance Board approved operating budget of $557,103,161 for FY 2018. The estimate is distributed across budget lines on a pro-rata basis until consumption data is collected and bills are issued. These estimates do not include: Specialized Service Agreements, adjustments for increases or decreases to program activities, or emergency appropriations (e.g., Ebola and GHSA), which will result in a change to the consumption/billing across budget lines.

The Working Capital Fund (WCF) is a revolving fund with extended availability and serves as the funding mechanism for centralized business services support across CDC. Business service offices provide services to CDC programs and the WCF bills programs for the services consumed based on pre-established rates.

In FY 2014, CDC base operations funding (Business Services Support) was transferred to all program budget lines to cover costs to establish and maintain the Working Capital Fund. The full funding is critical to maintain the agency's core operations. FY 2019 estimates have not been adjusted to reflect the changes proposed for the National Institute of Occupational Safety and Health or the Strategic National Stockpile. In FY 2014, these program budget lines received $40,559,594 and $12,882,869, respectively, from CDC's business services support line.

FY 2019 WCF Operating Budget

The WCF Governance Board, described below, approves the annual operating budget for the WCF. During 2018, the WCF board will approve the final operating budget for FY 2019. At that time, the WCF board will consider implications of programmatic and budgetary changes, including the consolidation of NIOSH and EEIOPCA activities in to NIH, and the transfer of the Strategic National Stockpile to ASPR.

The WCF operational budget includes the following:

- Service line budgets
- Restricted reserves
- Unrestricted reserves

The WCF is not constrained by the fiscal year cycle. Restricted reserves include amounts that will be used for capital Information Technology (IT) investments and accrued annual leave, while unrestricted reserves can be used for a variety of investments including any unforeseen, one-time cost during the fiscal year. The unrestricted reserve balance at the end of FY 2017 was $44.4 million. Of this amount, $11.9 million has been (or is expected to be) approved by the Board, reducing the available balance of unrestricted reserves to $32.5 million prior to any unanticipated expenses.

In FY 2019, CDC is requesting $50.0 million for business services. This one-time investment will fill critical gaps in business services that support CDC's research and programmatic activities. These funds will be deposited into the Working Capital Fund reserve.

Governance Structure

The WCF Governance Board provides a structured governance process for all aspects of budgeting for the WCF. The Board ensures senior level engagement and oversight, and promotes transparency. CDC Center Directors serve as the majority of voting members on the WCF Governance Board.

Internal Controls

The OMB Circular A-123 and GAO Standards for Internal Controls in the Federal Government define the framework for WCF's internal controls. The WCF internal control assessment process details activities to be performed by various stakeholders to ensure potential risks are identified, monitored, and mediated throughout the process. The WCF internal control assessment process aligns with CDC's internal controls program and is designed to help the WCF meet the following internal controls objectives:

- Effectiveness of WCF operations
- Reliability of financial reporting
- Compliance with applicable laws and regulations

CDC will monitor operational and financial performance of the WCF. In addition to operational reporting, the WCF will also report on the WCF's financial status and activities as part of CDC financial statements. In accordance with the CFO Act, WCF financial performance will be audited on an annual basis as part of HHS' CFO audit. Financial metrics will serve as key inputs into the evaluation of efficiency of WCF operations.

Retained Earnings: The WCF will maintain a balance of retained earnings that is not constrained by the fiscal year cycle. Retained earnings in the WCF are comprised of restricted and unrestricted retained earnings.

- Restricted retained earnings include funding for IT capital investments and accrued annual leave for WCF employees.
- Unrestricted retained earnings include funding used to finance unforeseen, one-time costs. In an effort to stabilize rates throughout the fiscal year, unrestricted retained earnings may also be used to absorb the impact of unanticipated price fluctuations that service providers may experience during the year.

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REIMBURSEMENTS AND TRUST FUNDS

(dollars in millions)	FY 2016 Actual	FY 2017 Actual	FY 2018 Estimate	FY 2019 Estimate
Reimbursements and Trust Funds	$319.765	$294.869	$412.109	$412.109
Total	$319.765	$294.869	$412.109	$412.109

Authorizing Legislation: PHSA §§ 214, 301, 306(b)(4), 311, 353; Consolidated Appropriations Act, 2016 (P.L. 114-113)

(dollars in millions)	FY 2016 Estimate	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate
Reimbursements and Trust Funds	$319.765	$412.109	$412.109	$412.109

CDC's reimbursable activities provide scientific and programmatic expertise to other agencies and organizations. CDC has a long history of partnering with other federal agencies in the shared interest of improving public health and prevention programs. Examples of these activities include:

- CDC will continue its longstanding agreements with other agencies of the Public Health Service, HHS, and others associated with CDC's health statistics studies. CDC will continue to provide scientific and programmatic expertise in areas such as genetic diseases, laboratory tests, investigations, development of worker safety guidance, and training and model screening programs.
- CDC will continue the association between the Epidemiology Program at Department of Veterans Affairs (VA) and the National Center for Health Statistics (NCHS). NCHS will perform searches of the National Death Index (NDI) for VA in research and surveillance studies. The Epidemiology Program conducts research and surveillance studies on the health of veterans to understand the causes and patterns of their health and illnesses. The data and research findings from these studies help VA health professionals improve healthcare practices for veterans. The findings also help VA leadership and Congress improve health policies for veterans.
- CDC will continue to work with the U.S. Agency on International Development (USAID) on various projects including the Emerging Pandemic Threats (EPT) program. The EPT program emphasizes early identification of, and response to, dangerous pathogens in animals before they can become significant threats to human health. These efforts are critical to the sustainability of long-term pandemic prevention and preparedness. They will help develop better predictive models for identification of future viral and other biological threats.
- In addition to reimbursable agreements and user fees, CDC receives funds from Cooperative Research and Development Agreements (CRADAs) to enhance and facilitate collaboration between the agency's laboratories and various partners. CDC provides research personnel, laboratory facilities, materials, equipment, supplies, intellectual property, and other in-kind contributions, and uses the income from CRADAs to continue to improve programs.

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PERFORMANCE BY ACTIVITY

IMMUNIZATION AND RESPIRATORY DISEASES

Immunization Program and Program Implementation and Accountability[152]

Performance Measure for Long Term Objective: Ensure that children and adolescents are appropriately vaccinated

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
1.2.1c: Achieve and sustain immunization coverage in children 19 to 35 months of age for one dose of MMR vaccine (Intermediate Outcome)	FY 2016: 91% Target: 90% (Target Exceeded)	90%	90%	Maintain
1.2.1h: Achieve and sustain immunization coverage of at least 90% in children 19-35 months of age for at least 4 doses of pneumococcal conjugate vaccine (Intermediate Outcome)	FY 2016: 82% Target: 90% (Target Not Met)	90%	90%	Maintain
1.2.1i: Achieve and sustain immunization coverage of at least 80% in children 19- to 35-months of age for 2-3 doses of rotavirus (Intermediate Outcome)	FY 2016: 74% Target: 74% (Target Met)	76%	78%	+2
1.2.2a: Achieve and sustain immunization coverage of at least 80% in adolescents 13 to 15 years of age for 1 dose of Tdap (tetanus and diphtheria toxoids and acellular pertussis) (Intermediate Outcome)	FY 2016: 88% Target: 90% (Target Not Met but Improved)	90%	90%	Maintain
1.2.2b: Achieve and sustain immunization coverage of at least 80% in adolescents 13 to 15 years of age for 1 dose of meningococcal conjugate vaccine (MCV4) (Intermediate Outcome)	FY 2016: 82% Target: 84% (Target Not Met but Improved)	87%	87%	Maintain
1.C: Number of states (including the District of Columbia) achieving 65% coverage for 1 birth dose of hepatitis B vaccine (19–35 months of age) (Output)	FY 2016: 46 Target: 50 (Target Not Met)	50	51	+1

[152]Targets through FY 2018 may include budget authority and/or PPHF funding.

1.D: Number of states (including the District of Columbia) achieving 30% coverage for influenza vaccine (6–23 months of age) (Output)	FY 2016: 50 Target: 47 (Target Exceeded)	49	51	+2
1.E: Number of states (including the District of Columbia) achieving 25% coverage for up-to-date with the full series of human papillomavirus vaccine (13–17 years of age) (Output)	FY 2016: 50 Target: 51 (Target Not Met but Improved)	51	51	Maintain
1.F: Number of states (including the District of Columbia) achieving 45% coverage for ≥ 1 dose of Tdap vaccine (13–17 years of age) (Output)	FY 2016: 51 Target: 51 (Target Met)	51	51	Maintain
1.G: Number of states (including the District of Columbia) achieving 45% coverage for ≥ 1 dose of meningococcal conjugate vaccine (13–17 years of age) (Output)	FY 2016: 51 Target: 51 (Target Met)	51	51	Maintain

[1]Targets are maintained at 90% to align with HP 2020 targets.

Performance Measures for Long Term Objective: Increase the proportion of adults who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
1.3.1b: Increase the percentage of adults aged 65 and older who are vaccinated with at least one dose of pneumococcal vaccine (Intermediate Outcome)	FY 2015: 64% Target: 76% (Target Not Met but Improved)	85%	85%	Maintain
1.3.2c: Increase the percentage of non-institutionalized adults ages 18 to 64 at increased risk of pneumococcal disease who are vaccinated with at least one dose of pneumococcal vaccine (Intermediate Outcome)	FY 2015: 23% (Baseline)	28%	29%	+1
1.3.3a: Increase the percentage of adults aged 18 years and older who are vaccinated annually against seasonal influenza (Intermediate Outcome)	FY 2016: 43% Target: 56% (Target Not Met but Improved)	62%	62%	Maintain

Performance Trends: Immunization continues to be one of the most cost-effective public health interventions. CDC supports the implementation of state-based immunization programs making vaccines available to children, adolescents, and adults. CDC estimates that, among children born during 1994–2016, vaccination will prevent an estimated 381 million illnesses, 24.5 million hospitalizations, and 855,000 early deaths over the course of their lifetimes, at a net savings of $360 billion in direct costs and $1.65 trillion in total societal costs.[153]

CDC achieved levels near or above national (Healthy People 2020) targets for most of the routinely recommended childhood vaccinations. Since FY 2010, measles, mumps, and rubella (MMR) vaccinations exceeded 90% coverage rates. Rotavirus vaccine coverage among children increased by 15 percentage points from 59% in FY 2010 to 74% in FY 2016. Coverage of pneumococcal conjugate vaccine (PCV13) was 82% in FY 2016 and has remained about the same since FY 2010 (ranging from 82%-84%); however, coverage with 3 doses PCV13 has exceeded 90% since 2010 (Measures 1.2.1). CDC has demonstrated an 87% decline in PCV13-type pneumococcal disease among children less than five years old in the U.S. Although CDC did not meet targeted coverage rates for PCV, strategies to improve the fourth dose of PCV coverage are in place and are similar to those used to improve the uptake of other vaccines, and CDC expects similar gains in the future.

Though CDC did not meet the FY 2016 target for adolescent vaccination coverage against human papillomavirus (HPV), partnerships and roundtables at the national, state and local levels have helped raise HPV coverage. At the end of 2016, CDC's Advisory Committee on Immunization Practices (ACIP) revised the HPV vaccination recommendation – adolescents starting the vaccine series before age 15 years should receive 2 doses separated by 6–12 months, all others should receive 3 doses. We anticipate that the change in recommendation will make it easier for clinicians to provide quality care and protect their patients from cancers caused by HPV infections. CDC will continue to monitor the implementation of this new recommendation.

CDC missed the target for tetanus, diphtheria, and pertussis (Tdap) and meningococcal conjugate vaccine in FY 2016. While Tdap vaccine coverage increased from 74% in FY 2010 to 88% in FY 2016, it is below the FY 2016 target of 90% (Measure 1.2.2a). Meningococcal conjugate vaccine (MCV4) coverage increased from 65% in FY 2010 to 82% in FY 2016, which is also below its 84% FY 2016 target (Measure 1.2.2b). Most states achieved target coverage rates for select child and adolescent vaccinations (Measures 1.C-1.G) in FY 2015, with little to no change from states' FY 2014 vaccination coverage rates. Strategies to improve vaccination coverage include provider assessment and feedback, use of reminder notifications, immunization information systems, and regular assessment of coverage levels in the National Immunization Survey.

During the past decade, vaccination coverage levels among older adults increased slightly as CDC implemented national strategies and partnered with state and local public health departments to promote adult immunization among healthcare providers and state and local governments. Pneumococcal vaccination for adults 65 and older has stayed within the range of 60% to 64% over the past four years (Measure 1.3.1b). In 2014, ACIP recommended that adults receive two doses of pneumococcal vaccine: one dose of PCV13 followed by a dose of PPSV23. Surveys assessing vaccination coverage are currently unable to determine which pneumococcal vaccine has been received; therefore, CDC is only able to assess receipt of at least one dose. CDC reset the baseline for measure 1.3.2b to correspond to these assessments. Although CDC did not meet the FY 2015 target for pneumococcal vaccination coverage among noninstitutionalized adults at increased risk for pneumococcal disease, the new measure (1.3.2c) reflects this new baseline. Measure 1.3.3a reflects the universal influenza vaccination recommendation and aligns with ACIP's updated recommendation (as of 2010) for the seasonal influenza vaccine. Seasonal influenza vaccinations increased slightly by two percentage points from FY 2013

[153]Benefits from Immunization during the Vaccines for Children Program Era – United States, 1994–2013. MMWR, 25 April 2014

(42%) to FY 2014 (44%), then varied from 42% in FY 2015 to 43% in FY 2016. CDC's efforts to improve adult vaccination coverage rates include:

- Increasing patient and provider education to improve demand and implement system changes in practitioner office settings to reduce missed opportunities for vaccinations
- Funding 10 state and local health departments to implement the Standards for Adult Immunization Practice in large health systems, community health centers, and pharmacies.
- Enhancing evidence-based communication campaigns to increase public awareness about adult vaccines and recommendations. CDC routinely conducts literature reviews and surveys of the general public and healthcare providers to provide a deeper understanding of the target audiences for development of adult immunization communication messages and campaigns.
- Expanding the reach of vaccination programs including new venues such as pharmacies and other retail clinics. CDC has existing partnerships to implement adult immunization practice standards, HPV vaccination, and pandemic vaccine program planning efforts to expand access to pandemic vaccine. As of 2016-2017 influenza season, nearly 1 in 4 adults who got an influenza vaccine were vaccinated in a pharmacy or retail setting.

Performance Measures for Long Term Objective: Improve vaccination safety and effectiveness

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
1.5.2: Increase the number of associations between vaccines and adverse health events evaluated to ensure the safety of vaccines used in the U.S. (Outcome)	FY 2016: 753 pairs Target: 482 pairs (Target Exceeded)	803 pairs	853 pairs	+50
1.H: Percentage of Vaccine Events Reporting System (VAERS) reports received electronically (Output)	FY 2017: 59%[1] Target: 40% (Target Exceeded)	43%	46%	+3

[1]FY 2017 final data is pending from VAERS. CDC will provide the final result when available.

Performance Trends: CDC is the nation's leading public health agency responsible for providing a safe, effective supply of all licensed vaccines approved for use in the United States. CDC closely monitors the safety of vaccines after they are licensed for public use by the Food and Drug Administration (FDA) through its Vaccine Safety Datalink System[154] (VSD) and Vaccine Adverse Event Reporting System[155] (VAERS). VAERS is a joint effort with the FDA. Together, these surveillance systems evaluate vaccine risks, monitoring any known and potential adverse events for vaccines, and rapidly detecting unusual patterns of vaccine adverse events. In addition, CDC works with multiple integrated health systems to conduct vaccine safety studies to further assess whether any adverse health events are actually caused by vaccines. In FY 2016, there were 753 total vaccine-adverse event pair studies conducted through VSD, which exceeds both FY 2016 and FY 2017 targets (Measure 1.5.2).

CDC and its partners also conduct studies to help ensure safe vaccination for the public. For example, recent CDC studies continue to conclude that administering vaccines such as Tdap, one of the main vaccinations that women receive while pregnant, are safe and do not increase the risks of premature births, structural birth defects, and/or severe vaccine reactions in pregnant women.

Electronic submission of VAERS vaccine safety reports helps to improve program decision-making by increasing the timeliness, quality, and quantity of these vaccine safety reports and enhances CDC's ability to quickly

[154]http://www.cdc.gov/vaccinesafety/ensuringsafety/monitoring/vsd/index.html
[155]http://www.cdc.gov/vaccinesafety/ensuringsafety/monitoring/vaers/index.html

evaluate and disseminate safety information to healthcare providers and consumers. For example, VAERS reporting helped identify an issue related to vaccine administering errors for certain vaccines. Failure to administer vaccines correctly could lead vaccine recipients at risk for preventable diseases (e.g., pertussis and meningococcus disease) and other adverse health events. CDC continues to raise awareness to clinicians on proper methods for administering and preparing specific vaccines to prevent potential adverse events and health risks.[156]

At this time, approximately 59% of all VAERS reports were submitted electronically in FY 2017, which is a 29 percentage point increase compared to FY 2016 results (Measure 1.H). Given CDC and FDA were successful in implementing information technology enhancements in 2017, (e.g., updating the VAERS reporting interface to facilitate electronic reporting and implementing the updated VAERS form for more direct electronic reporting), Overall, CDC and FDA expects an increase in electronic reporting to VAERS going forward.

Influenza Planning and Response

Performance Measures for Long Term Objective: Protect Americans from infectious diseases – Influenza

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
1.6.1: Increase the number of public health laboratories monitoring influenza virus resistance to antiviral drugs (Output)	FY 2016: 21 Target: 21 (Target Met)	21	21	Maintain
1.K: Number of jurisdictions with at least 1.5 state/local health department laboratorians or influenza coordinators trained and funded through Epidemiology and Laboratory Capacity (ELC) grant (output)	FY 2016: 57 Target: 54 (Target Exceeded)	54	54	Maintain
1.M: Number of virus specimens received and fully characterized using deep sequencing from global National Influenza Centers for use in determining vaccine strain selection annually[1] (Output)	FY 2016: 6,207 Target: 2,000 (Target Exceeded)	6,000	7,000	+1,000
1.O: Increase the percentage of influenza partner countries with a Severe Acute Respiratory Infection (SARI) surveillance system that demonstrate the capacity to improve flu detection and response by conducting syndromic surveillance for flu and other respiratory pathogens (Output)	FY 2016: 81% Target: 60% (Target Exceeded)	80%	80%	Maintain
1.P: Percentage of influenza partner countries reporting data routinely into WHO FluNet (Output)	FY 2016: 80% Target: 70% (Target Exceeded)	80%	80%	Maintain

[156] https://www.cdc.gov/mmwr/volumes/65/wr/mm6506a4.htm

Performance Trends: As a World Health Organization (WHO) Collaborating Center for Influenza, CDC enhances global capacity to monitor influenza viruses and inform vaccine policy and treatment recommendations. CDC met the FY 2016 target of 21 domestic public health programs monitoring influenza virus resistance to antiviral drugs, continuing a significant increasing trend from the 2009 baseline of three (Measure 1.6.1). However, CDC targets remain at 21 as CDC has reached maximum capacity consistent with funding levels.

Domestic Surveillance

CDC enhances state and local capacity to gather influenza epidemiology and laboratory data for systematic and accurate surveillance of seasonal and novel influenza viruses by providing training and resources to its grantees. In FY 2016, 57 jurisdictions had at least 1.5 state/local health department jurisdiction or influenza coordinators trained and funded through the Epidemiology and Laboratory Capacity (ELC) grant, exceeding the target by three (Measure 1.K). Maintaining this support for state/local public health capacity is paramount to the success of domestic surveillance for both seasonal and pandemic influenza preparedness.

Through CDC's Influenza Reagent Resource[157] (IRR), CDC distributes its flu diagnostic kits to all qualified state and local public health laboratories engaged in virologic surveillance testing to ensure the availability of timely diagnostic resources domestically and globally. This significantly reduces the financial burden for states. The decrease in the number of kits shipped is an indicator of increased efficiency in the IRR system, where kits are distributed based upon need, and is not an indicator of a problem with the IRR. During the FY 2016 influenza season, CDC received and fully characterized 6,206 virus specimens using deep sequencing from the global National Influenza Centers for use in vaccine strain selection, representing a significant increase from the 2014/2015 season (Measure 1.M). This increase is primarily due to incorporating Advanced Molecular Detection techniques within the characterization process, which helps to inform influenza vaccine virus selection and improve vaccine effectiveness.

Global Surveillance

CDC strengthens Global Health Security by equipping partner nations' capacity to improve and sustain their influenza detection and response capabilities through timely reporting into their respective Severe Acute Respiratory Infection (SARI) surveillance systems and the submission of influenza samples to WHO FluNet. In FY 2016, 81% of partner countries demonstrated the capacity to improve flu detection and response by conducting syndromic surveillance for flu and other respiratory pathogens (Measure 1.O), representing a significant increase over baseline. CDC's efforts to strengthen international influenza monitoring, evaluation, lab testing, and pandemic preparedness have resulted in an increase in the number of countries reporting to WHO FluNet from 40% in FY 2005 to 80% in FY 2016, an increase from FY 2015 (Measure 1.P).

[157]https://www.influenzareagentresource.org/

HIV/AIDS, VIRAL HEPATITIS, SEXUALLY TRANSMITTED INFECTIONS, AND TUBERCULOSIS

Domestic HIV/AIDS Prevention and Research

National Level Performance Measures and CDC Contextual Indicators for Long Term Objective: Reduce new HIV infections[1]

Contextual Indicators	Most Recent Result	FY 2020 Target
2.1.1: Reduce the number of new HIV diagnoses by at least 25 percent (Outcome)	FY2015: 39,741	32,855
2.1.3: Increase the percentage of people living with HIV who know their serostatus (Outcome)	FY 2014: 85%	90%
2.1.9: Reduce the number of new HIV infections by 25% (Outcome)	FY 2014: 37,600	TBD
2.1.10: Increase the percentage of persons with diagnosed HIV infection who are virally suppressed to at least 80% (Outcome)	FY 2014: 57.9%	80%

[1]CDC's HIV contextual indicators have been updated and now reflect national level strategies, planning, and measurement.

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
2.1.8 Reduce the proportion of persons with an HIV diagnosis at later stages of disease within three months of diagnosis (Outcome)	FY 2014: 23.1% Target: 23.5% (Target Exceeded)	21.6%	21.6%	Maintain
2.1.7 Increase the proportion of adolescents (grades 9-12) who abstain from sexual intercourse or use condoms if currently sexually active (Outcome)	FY 2015: 87.3% Target: 86.9% (Target Exceeded)	N/A[1]	87.5%	N/A

[1]Targets and results reported every 2 years.

National Level Performance Measure and CDC Contextual Indicator for Long Term Objective: Increase access to care and improve health outcomes for people living with HIV

Contextual Indicators	Most Recent Result	FY 2020 Target
2.2.1: Increase the percentage of persons with newly diagnosed infections linked to HIV medical care within one month of their HIV diagnosis to at least 85 percent1 (Contextual Indicator)	FY 2015: 75%	85%

[1]This contextual indicator has been changed from linkage within three months of HIV diagnosis to linkage within one month of HIV diagnosis.

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
2.2.2 Increase the percentage of HIV-infected persons in CDC-funded counseling and testing sites who were referred to Partner Services to confidentially notify and provide HIV testing and prevention services to partners who may be infected (Outcome)	FY 2015: 89.4% Target: 83.5% (Target Exceeded)	85%	85%	Maintain
2.2.3 Increase the percentage of HIV-infected persons in CDC-funded counseling and testing sites who were referred to HIV prevention services to reduce risk of HIV transmission to others (Outcome)	FY 2015: 78.9% Target: 77% (Target Exceeded)	80%	80%	Maintain
2.2.4 Increase the number of states that report all CD4 and viral load values for HIV surveillance purposes (Output)	FY 2016: 42[1] Target: 43[2] (Target Not Met)	45[3]	45[3]	Maintain

[1] 42 + DC

[2] 43 + DC

[3] 45 + DC

Performance Trends: As the number of persons living with HIV increases due to better, life-prolonging treatments, so does the demand for CDC prevention activities. The estimated number of people living with HIV in the United States is 1.1 million with an estimated 37,600 new HIV infections in 2014. CDC monitors HIV through the National HIV Surveillance System[158] using the data to direct prevention efforts and provide researchers, policymakers, and the public with a timely understanding of HIV trends in the U.S. Reducing the number of new HIV infections is a shared national and CDC priority. During 2010-2014, new HIV infections decreased 10.3% and the percentage of undiagnosed infection decreased from 17.1% to 15% in the United States (Contextual Indicator (CI) 2.1.9)[159].

In 2015 there were 39,741 new HIV diagnoses in the United States, exceeding the expected progress in reducing the number of new diagnoses (CI 2.1.1). Only 23.1% of persons with new diagnosed HIV received the result late in the course of infection in 2014 (Measure 2.1.8). CDC's analysis of HIV diagnoses data from 2011 to 2015

[158] With more than 80 percent of diagnosed cases reported, HIV and AIDS case surveillance data meet high standards for completeness of reporting.

[159] Johnson, Anna Satcher. "Estimated HIV Incidence, Prevalence, and Undiagnosed Infections in the US States and Washington, D.C.: JAIDS Journal of Acquired Immune Deficiency Syndromes." LWW, 2017

reveals signs of an encouraging decrease in HIV diagnoses among several key populations, including heterosexuals, people who inject drugs, and black or African Americans, with particularly steep declines among black women. Diagnoses are stabilizing among black gay and bisexual men and young black gay and bisexual men (13-24 years of age); however, diagnoses among gay and bisexual Hispanic or Latino men increased in the same time period[160]. These trends, suggest that intensified HIV testing and prevention efforts among black gay and bisexual men are having an impact[161]. However, public health must continue these focused efforts to maintain the positive trends. Among regions most affected and among groups at substantial risk for HIV, accelerated efforts must continue to ensure access to testing, treatment, and prevention strategies, to ensure that every American has the knowledge and tools needed to protect themselves and their partners from HIV infection.

Diagnosis of HIV is only the first step in reducing infection. Three out of every five new infections can be attributed to people who have been diagnosed with HIV but who are not in care. Patients must be linked to, and retained in medical care in order to achieve and maintain viral suppression [having very low levels of HIV (viral load) present in the body]. Evidence shows that viral suppression helps people living with HIV to maintain their health and also prevents transmission of HIV to others. In 2014, 57.9% of persons with diagnosed HIV infection were virally suppressed, exceeding the 2013 result and the 2014 target of 54.5% by three percentage points (CI 2.1.10). Recognizing the benefits of early treatment, and linkage to HIV medical care for all persons with newly diagnosed HIV infection, CDC's linkage to care goal changed from within three months of diagnosis to within one month of diagnosis. CDC is working to meet the national HIV prevention goal of ensuring 85% of all persons with diagnosed HIV are linked to medical care within one month of diagnosis (Measure 2.2.1). Linkage was 70.2% in 2010 (baseline year) and improved to 75% in 2015, nearly meeting the FY 2015 target and an increase over the FY 2014 results.

The majority of Americans with HIV are aware of their infection due, in part, to expanded HIV testing efforts. CDC estimates that 85% of people living with HIV were aware of their status in 2014, up from 80.9% in 2006 (Contextual Indicator (CI) 2.1.3). This means six out of seven people living with HIV in 2014 knew their status. CDC directly funds testing that identifies 1/3 of the HIV diagnoses each year. CDC's Expanded Testing Initiative prevented an estimated 3,380 HIV infections in its first three years and saved an estimated $1.2 billion in direct medical costs[162]. Data for FY 2015 indicate that CDC-funded health department HIV testing programs performed 3 million HIV tests, further increased routine HIV testing in health care and community settings, and identified about 12,500 previously undiagnosed cases of HIV infection[163]. Testing provides a bridge to care for people living with HIV. For those who receive an HIV diagnosis, the test is the first step toward care and treatment. For those who are not infected, but at risk, testing opens the door to prevention services, like pre-exposure prophylaxis (PrEP) that can keep them healthy and HIV free.

Partner services programs are essential in preventing and controlling HIV in the United States and offer benefits to three principal groups: persons living with HIV, their partners, and the community. A function of partner services is notifying partners of persons with diagnosed HIV infection of their possible HIV exposure and risk. Other functions of partner services interventions include prevention counseling, testing for HIV and other STIs, treatment or linkage to medical care, and linkage or referral to other prevention and social services. Partner services have been associated with positive behavior changes and reduced risk for HIV infection, along with reduced HIV transmission. Referrals to partner services increased for people with diagnosed HIV in publically funded HIV testing sites from 85% in 2013 to 89.4% in 2015, exceeding the 2015 target by nearly 6 percentage

[160] http://www.cdc.gov/hiv/pdf/policies/cdc-hiv-prevention-bluebook.pdf
[161] CDC Fact Sheet: Trends in U.S. HIV Diagnoses, 2005-2014. December 2015. Available at www.cdc.gov/nchhstp/newsroom/fact-sheets.html.
[162] Farnham PG, et al. Updates of lifetime costs of care and quality-of-life estimates for HIV-infected persons in the United States: Late versus early diagnosis and entry into care. JAIDS 2013. 64:183-189.
[163] http://www.cdc.gov/hiv/pdf/library/reports/cdc-hiv-funded-testing-us-puerto-rico-2015.pdf

points (Measure 2.2.2). In 2015, 99% of the 17,544 partners identified through partner services interventions were notified of their potential HIV exposure. Of the 7,981 partners tested and who had a documented HIV test result, 2,874 were newly identified with an HIV diagnosis. Additionally, while referrals for these individuals to other HIV prevention services held steady at 78.9% in 2014, and in 2015 the target (77%) was exceeded (Measure 2.2.3). Since FY 2011, referrals to partner services have increased eight percentage points, while referrals to other HIV prevention services have increased 15 percentage points. CDC prioritizes these services in its health department HIV prevention and surveillance program because of the high proportion of newly identified HIV-positive persons. A new funding cycle will begin in January 2018 and CDC will continue to provide expert advice and assistance to grantees to further improve performance in these areas.

CDC also supports efforts to get effective HIV biomedical prevention tools, like pre-exposure prophylaxis (PrEP), into the community and in the hands of persons who need them most. For those at high risk for HIV, PrEP can significantly reduce the risk of HIV infection if taken daily. To address barriers in prescribing PrEP among providers, in September 2016, CDC launched the Continued Education online program, Preventing HIV Infection in the Primary Care Setting: The Role of Pre-Exposure Prophylaxis (PrEP). At the conclusion of the program's first year online, over 14,260 healthcare providers had learned about the use of PrEP in the primary care setting, including patient assessment and management, CDC guidelines, and tips for incorporating it into practice. Of the 6,214 healthcare providers who took the final test, more than a quarter said they would modify treatment plans and change screening/prevention practices as a result. The program is continuing for an additional year as a result of program success and ongoing demand to build healthcare providers' capacity to provide PrEP. A follow-up educational program launched in September 2017, Advancing PrEP in Practice: Practical Strategies for Everyday Challenges allows clinicians to make clinical decisions around PrEP prescribing, monitoring and follow-up through video vignettes. As of December 2017, more than 6,327 healthcare providers have accessed the course, with over 1,575 taking the final test for continuing education credits. CDC also provides clinicians advice and consultation about prescribing PrEP through the free national service PrEPline. Utilization of this service is increasing with almost 1,400 calls through the end of 2016. CDC continues to promote PrEP as a prevention tool among consumers and providers through the online Risk Reduction Tool and the Act against AIDS communication campaign.

Data show an increase in awareness of PrEP and willingness to either use it or prescribe it, although additional awareness and implementation efforts are needed, particularly among most affected populations and their care providers, to scale up this highly effective biomedical intervention.

The crisis of prescription opioid and heroin use is increasing unsafe, nonsterile injection practices nationally, threatening the successes made preventing new HIV infections among persons who inject drugs (PWID). CDC observed a steady decline since the mid-1990s in HIV infections attributable to injection drug use, from a peak of over 30% of AIDS cases in 1993 to approximately 5% of new HIV infections most recently. However, recent data suggest progress may be slowing. CDC supports state and local communities who wish to use Federal funds to implement syringe services programs (SSPs), after consulting with CDC and in accordance with state and local law. SSPs are comprehensive community programs that address drug use and infectious diseases. Based on existing evidence, SSPs, when part of a comprehensive HIV prevention strategy, can play a role in preventing HIV among PWID, can facilitate entry into substance use disorder treatment and medical services, and do not increase illegal drug use. As of December 2017, 37 state or county health departments have adequately demonstrated need and received CDC concurrence according to Federal law. The opportunity for CDC and its grantees to use federal funds to support certain components of SSPs endows at-risk communities with an additional HIV prevention tool.

CDC-led studies and broader scientific evidence demonstrate that school health programs can positively impact health-risk behaviors, health outcomes, and educational outcomes and are cost effective. For example, every dollar invested in school-based HIV, sexually transmitted infections (STI), and pregnancy prevention efforts saves

$2.65 in medical costs and social costs (including earnings-related outcomes, public assistance, and other outcomes)[164]. CDC is strengthening the health infrastructure of state and local education agencies and addressing critical health issues including HIV/AIDS, STIs, and teen pregnancy prevention in schools. For example, the percentage of high school students who have ever had sexual intercourse decreased from 54.1% in 1991 to 41.2% in 2015. The percentage of adolescents in grades 9 to 12 abstaining from sexual intercourse, or using condoms if currently sexually active, increased from 86.3% in FY 2013 to 87.3% in FY 2015, exceeding CDC's FY 2015 target (Measure 2.1.7) and condom use among currently sexually active students decreased from 63.0% in 2003 to 56.9% in 2015.

CDC, in collaboration with state and local health departments, are working to better monitor the effects of HIV medical care through expanded reporting of CD4 and viral load test results. Test results are vital indicators of which patients are in care and virally suppressed, and those patients who have fallen out of care. In FY 2016, the number of states requiring reporting of all CD4 and viral load values, through law or regulation, held steady at 42 states and D.C., (Measure 2.2.4). CDC data from 38[165] jurisdictions with complete laboratory reporting demonstrate progress on increasing linkage to care compared to previous national estimates. These jurisdictions represent 72% of persons living with diagnosed HIV. CDC continues to prioritize expanded reporting of CD4 and viral load reporting in the HIV prevention and surveillance program.

With stronger reporting, CDC's Data to Care tools increase health department capacity to use routinely collected HIV surveillance data to identify and follow up with people living with HIV who are not in care or who have persistently elevated viral loads. CDC continues to learn best practices through Data to Care demonstration projects and related activities in the HIV surveillance and prevention program. From 2012-2015, five health departments used HIV surveillance data to link 89% of persons with a new HIV diagnosis to an appointment with an HIV provider within 90 days of diagnoses. In addition, nine health departments used HIV surveillance data to re-engage an average of 68% of persons with HIV infection in their jurisdictions known to be out of care.

Complete reporting that includes viral genetic sequence data can also support efforts to rapidly detect and interrupt active HIV transmission. Analysis of molecular data provides an opportunity to identify recent and rapid bursts of HIV transmission and respond to them by implementing prevention interventions to slow and ultimately stop the spread of infection. Once clusters are identified, public health officials can direct resources to where they are needed most and begin implementing intensive prevention interventions (engagement in care, partner services, HIV testing, PrEP, SSPs) in networks with active transmission, which in turn saves health care dollars associated with HIV and other related health outcomes. Since 2016, CDC has collaborated with state health departments to identify 60 molecular clusters of HIV infections and provided technical assistance to 16 health departments in response to them. Molecular surveillance also allows us to monitor HIV transmission, HIV drug resistance, and HIV genetic diversity to guide public health action. These molecular surveillance efforts support improving health outcomes and prevent transmission at the individual and community level. CDC is working to expand molecular surveillance capacity to all states.

[164]Wang, L. Y., Davis, M., Robin, L., Collins, J., Coyle, K., & Baumler, E. (2000). Economic evaluation of Safer Choices: a school-based human immunodeficiency virus, other sexually transmitted diseases, and pregnancy prevention program. Archives of pediatrics & adolescent medicine, 154(10), 1017-1024.

[165]There are 42 states and DC with laws that require reporting of all CD4 and viral load test results. However, 37 states and DC met the criteria of complete lab reporting to be included in the monitoring report (i.e., have the law, 95% of labs are reporting to the state and 95% of labs received by the state are reported to CDC).

Hepatitis

Performance Measures for Long Term Objective: Reduce the rates of viral hepatitis in the United States

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
2.6.1 Reduce the rate of new cases of hepatitis A (per 100,000 population) (Outcome)	FY 2015: 0.4/100,000 Target: 0.4/100,000 (Target Met)	0.4/100,000	0.3/100,000	-0.1
2.6.2 Reduce the rate of new cases of hepatitis B (per 100,000 population) (Outcome)	FY 2015: 1.1/100,000 Target: 0.9/100,000 (Target Not Met)	0.9/100,000	0.5/100,000	-0.4
2.6.4 Increase the number of state and local health departments reporting acute and chronic viral hepatitis data of sufficient quality to be included in national surveillance reports[1] (Output)	FY 2015: 28 (Baseline)	29	30	+1

[1]In previous years, only states that received enhanced surveillance funding were included in the result. Starting in FY15, results reflect the number of states reporting both chronic and acute HBV and HCV in CDC's Viral Hepatitis' Surveillance Report for that year.

Performance Trends: In the United States, hepatitis A, B, and C viruses (HAV, HBV, and HCV) are the main causes of viral-induced hepatitis. As many as 4.4 million people are living with HBV or HCV infection, which together are major causes of chronic liver disease and liver cancer. In contrast to the declining rate of deaths from other cancers, deaths from liver cancer are rising in the United States, with much of the increase attributed to viral hepatitis. After decades of annual increases in HCV-related mortality, death rates declined slightly in 2015. Despite this change, the number of deaths related to HCV continues to exceed deaths from all other reportable infectious diseases in the United States.

Of particular concern is the rise in the number of new cases of viral hepatitis in the United States. The rate of new HCV infections reported to CDC increased by 167% nationally from 2010 to 2015, with most new infections occurring among adolescents and young adults. The number of reported cases of acute hepatitis B increased 20.7% between 2014 and 2015. The opioid crisis (and injection of other substances) is largely responsible for increases in the incidence rates of HBV and HCV. The trends reflect inadequate access to effective prevention services, including access to drug treatment, hepatitis B vaccination, testing and treatment for persons infected with viral hepatitis, and sterile injection equipment.

Hepatitis A vaccination coverage has increased, contributing to declines in HAV infections among young children and adolescents. The variability in hepatitis A incidence rates over time highlights the importance of public health surveillance to identify and respond to HAV outbreaks.

CDC provides technical assistance to states for improving viral hepatitis surveillance. In May 2017, CDC awarded fourteen states (Florida, Georgia, Indiana, Kentucky, Louisiana, Massachusetts, New Jersey, North Carolina,

Ohio, Oklahoma, Tennessee, Utah, Washington, West Virginia) with new funding to improve active surveillance of new HCV and HBV infection in statewide jurisdictions; these fourteen jurisdictions represent more than 70% of new cases of HCV and HBV reported in the U.S. in 2014. Although CDC did not meet targets in FY 2011 and FY 2012, CDC expanded the scope of this measure in FY 2013 to include chronic viral hepatitis. Prior to FY 2015, CDC had only been including states that received enhanced surveillance funding. As a result, CDC reported low numbers and did not meet targets. Therefore, in FY 2015, a new baseline was established to include all states that reported both acute and chronic viral hepatitis (Measure 2.6.4).

Improvements in surveillance and monitoring would help to rapidly detect and prevent new HBV and HCV infections, as well as to assure that HCV infected persons receive appropriate care and curative treatment to avoid premature death and prevent transmission. Surveillance data from 2015 demonstrate that new cases of hepatitis C infection have nearly tripled since 2010. In collaboration with state and local health departments, CDC has investigated and reported outbreaks and alarming increases in HCV transmission and related disease, and mortality risks associated with the opioid crisis. According to surveillance data and other studies, the new cases of hepatitis C have been predominantly among young, white persons with a history of injection drug use. The highest rates of new HCV infections are reported among young adults in rural and small urban areas. However, the largest proportion of all new cases of HCV are reported from suburban and large urban areas reflecting the national scope of the HCV epidemic. In at least 12 sites in 2015, increases in HCV transmission are joined by increases in HBV caused by poor vaccination coverage among at-risk adults.

CDC estimates that 3.5 million persons are living with HCV in the United States, the majority of whom have moderate to severe liver disease that can be stopped with immediate testing, treatment, and cure of their HCV infection. Unfortunately, half of Americans living with HCV do not know they are infected and even fewer are receiving appropriate care and fewer still are receiving life-saving treatment. To help Americans receive HCV testing, CDC expanded previous risk-based recommendations to call for a routine one-time test for all persons born during 1945-1965, a population representing 75% of all infected persons. This birth cohort is at greatest risk for HCV-related mortality with an average age of death of 59 years[166]. CDC has developed a toolbox of strategies that help clinicians implement HCV testing and linkage to care. CDC estimates that even modest implementation of these interventions can avert over 320,000 deaths from HCV in the future[167].

Based on data from recent national health surveys conducted by CDC, at least 850,000 HBV-infected persons are living in the U.S., studies based on other data estimate that as many as 2.2 million persons are living with HBV infection. Vaccination is the cornerstone of HBV prevention. The biggest challenges are 1) a timely dose of hepatitis B vaccine to be given to newborns preferably within 24 hours of birth, and 2) improving vaccination coverage among at-risk adults. Virtually all newborns, when infected with HBV, remain infected for life resulting in one in four dying of HBV-related cirrhosis and liver cancer. The elimination of mother-to-child transmission of HBV was an articulated goal in the National Academies' 2017 report, "A National Strategy for the Elimination of Hepatitis B and C," as well as the national Viral Hepatitis Action Plan[168]; it is also the priority for CDC-funded Perinatal Hepatitis B Prevention Programs (PHBPP). Evaluation data confirm that perinatal hepatitis B prevention programs are an effective way of preventing infant HBV infection. CDC is supporting PHBPP by facilitating laboratory reporting of HBV-infected pregnant women from national commercial laboratories, and encouraging administration of the first dose of hepatitis B vaccine routinely before hospital discharge, as recommended by

[166] Centers for Disease Control and Prevention. Recommendations for the identification of chronic hepatitis C virus infection among persons born during 1945–1965. MMWR. 2012;61(RR-04):1-18.
[167] Rein DB, Wittenborn JS, Smith BD, Liffmann DK, Ward JW. The Cost-effectiveness, Health Benefits, and Financial Costs of New Antiviral Treatments for Hepatitis C Virus. Clin Infect Dis. 2015 Jul 15;61(2):157-68.
[168] U.S. Department of Health and Human Services, Office of the Assistance Secretary for Health, Office of HIV/AIDS and Infectious Disease Policy. Action Plan for the Prevention, Care, and Treatment of Viral Hepatitis (2017-2020). Washington, DC: U.S. Department of Health; January 2017

the Advisory Committee on Immunization Practices (ACIP), and a National Quality Forum[169] hepatitis B birth dose coverage quality measure. In addition, CDC has updated recommendations to shorten the interval for post vaccination serologic testing of infants born to hepatitis B-infected mothers. This testing is performed to assess whether the child has responded to hepatitis B vaccination or become infected with HBV.

From 2014 to 2015, the number of new cases of HBV infection increased 21%. The rate of new infections of HBV are highest among adults over age thirty years of age - a population with low hepatitis B vaccination coverage. The increase in HBV incidence is temporally associated with increases in injection drug use behaviors and transmission of other blood-borne viruses including HCV.

CDC continues to pursue opportunities for reducing new HBV infections in populations other than children. For example, CDC provided technical analyses to ACIP to expand recommendations for adult hepatitis B vaccination to include persons with diabetes aged 19–59 years, given the increased risk of HBV infection in this population. Additionally, in 2016, CDC released a report on the increases in new cases of HBV in the Appalachian region[170]. The report describes a 114% increase in acute hepatitis B from 2006-2013 in three states — Kentucky, Tennessee, and West Virginia; increases primarily occurred after 2009 — highlighting an emerging hepatitis B epidemic among young adults living in non-urban areas and provides valuable insight into a growing epidemic in the United States.

HAV is vaccine preventable and is the only preventable food-borne illness in the United States. Prior to the 1996 implementation of ACIP recommendations for hepatitis A immunization, an estimated 271,000 infections and 100 deaths occurred as a result of acute liver failure attributed to HAV each year. Through the implementation of effective immunization strategies, nationwide HAV incidence decreased approximately 97% since 1995. Since 2008 when coverage data began being reported, hepatitis A vaccine has had the lowest coverage level for any vaccine in the infant immunization schedule. Most adults are susceptible to hepatitis A, through lack of childhood exposure or vaccination, and are vulnerable to infection particularly during food-borne outbreaks of hepatitis A. Adults with hepatitis A have the highest risk for liver failure and death. An update of ACIP recommendations for hepatitis A vaccination is an opportunity to present new strategies to improve vaccination coverage and guide the use of hepatitis A vaccination in response to disease outbreaks.

CDC continues to assist states to respond to large outbreaks of HAV related to contaminated food products and among homeless populations. A large proportion of the homeless populations are also infected with HCV increasing the disease and hospitalizations related to these outbreaks. Between 2012 and December 2017, there have been six large HAV outbreaks investigated by CDC, with over 1,500 total cases reported and investigated in 2017 alone. From 2011-2013, an increase in the number of reported cases of hepatitis A was observed, particularly during a large hepatitis A outbreak from imported produce consumed by persons in several southwestern states and Hawaii in 2013. In 2015, there were 1,390 reported cases of hepatitis A. After adjusting for under-ascertainment and under-reporting, an estimated 2,800 hepatitis A cases occurred in 2015. Since March 2017, CDC has been assisting several state and local health departments with HAV outbreaks that have occurred primarily among persons who are homeless, persons who use injection and non-injection drugs, and their close direct contacts. CDC continues to assist state/local health authorities to respond to outbreaks of hepatitis A.

CDC expects that the expansion of access to recommended routine hepatitis A vaccination for children and at-risk adult populations including homeless will be needed to reduce HAV rates further. Although hepatitis A vaccination coverage is increasing in the United States among children 19-35 months, the proportion of children who were fully vaccinated was only 57.5% in 2014. CDC met its FY 2015 target of 0.4 cases of HAV per 100,000

[169] http://www.cdc.gov/hepatitis/hbv/perinatalxmtn.htm

[170] Harris AM, et al. Increases in Acute Hepatitis B Virus Infections — Kentucky, Tennessee, and West Virginia, 2006–2013. MMWR 2016;65:47-50.

population. This approaches the Healthy People 2020 target of 0.3 cases per 100,000 (Measure 2.6.1). However, cases of acute HAV increased 12.2% from FY 2014 (1,239) to FY 2015 (1,390).

Greater effort is needed to improve the quality of viral hepatitis surveillance data, particularly to track the burden of chronic infection and access to preventive services. The current volume of viral hepatitis testing overwhelms the existing surveillance capability of most state and local health departments. As a consequence, the number of cases reported to CDC underestimate the expected number of cases actually occurring, and do not always include sufficient information about the case. Improvements in surveillance and monitoring efforts are needed to strengthen preventive services if the U.S. is to reverse the current trend of increasing annual hepatitis C-related deaths – which exceed the total combined number of deaths from 60 other infectious diseases reported to CDC, including HIV, pneumococcal disease, and tuberculosis[171].

Sexually Transmitted Infections

Performance Measures for Long Term Objective: Reduce pelvic inflammatory disease in the United States

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
2.7.1 Reduce pelvic inflammatory disease in the U.S. as measured by initial visits to physicians in women aged 15-44 years (NDTI) (Outcome)	FY 2016: 90,000 Target: 86,423 (Target Not Met)	68,000	68,000	Maintain
2.7.2a Reduce the percentage of high-risk women aged 16-20 infected with chlamydia (Outcome)	FY 2016: 12.3% Target: 11.75% (Target Not Met but Improved)	11.75%	11.75%	Maintain
2.7.2b Reduce the percentage of high-risk women aged 21-24 infected with chlamydia (Outcome)	FY 2016: 7.4% Target: 8.32% (Target Exceeded)	8.32%	8.32%	Maintain
2.7.4a Reduce the rate of gonorrhea per 100,000 population in women aged 16-20 (Outcome)	FY 2016: 586.0 Target: 524.6 (Target Not Met)	523.9	523.9	Maintain
2.7.4b Reduce the rate of gonorrhea per 100,000 population in women aged 21-24 (Outcome)	FY 2016: 573 Target: 507.7 (Target Not Met)	511.8	511.8	Maintain
2.7.4c Reduce the racial disparity of gonorrhea in women	FY 2016: 8.4:1 ratio Target: 10.1:1 ratio (Target Exceeded)	9.5:1	9.5:1	Maintain

[171]Ly KN, Hughes EM, Jiles RB, Holmberg SD. Rising Mortality Associated With Hepatitis C Virus in the United States, 2003–2013. , Clin Infect Dis 2016, 62(10):1287-1288.

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
aged 16-24 (black: white ratio) (Outcome)				
2.7.5 Increase the proportion of gonorrhea patients who are treated with a CDC-recommended antibiotic regimen for gonorrhea (Outcome)	FY 2016: 86.4% Target: 87.5% (Target Not Met)	87.6%	87.6%	Maintain
2.7.6a Increase the proportion of sexually active women aged 16–20 enrolled in Medicaid health plans who are screened for Chlamydia infections (Outcome)	FY 2016: 56.4% Target: 62.5% (Target Not Met)	62.5%	62.5%	Maintain
2.7.6b Increase the proportion of sexually active women aged 16–20 enrolled in commercial health plans who are screened for Chlamydia infections (Outcome)	FY 2016: 44.3% Target: 43.5% (Target Exceeded)	43.5%	43.5%	Maintain
2.7.6c Increase the proportion of sexually active women aged 21–24 enrolled in Medicaid health plans who are screened for Chlamydia infections (Outcome)	FY 2016: 64.9% Target: 66% (Target Not Met but Improved)	66%	66%	Maintain
2.7.6d Increase the proportion of sexually active women aged 21-24 enrolled in commercial health plans who are screened for Chlamydia infections (Outcome)	FY 2016: 54.8% Target: 52.7% (Target Exceeded)	52.7%	52.7%	Maintain
2.9.1 Reduce the incidence of primary & secondary syphilis in women aged 15-44 (per 100,000 population) (Outcome)	FY 2016: 4.2 /100,000 Target: 0.8 /100,000 (Target Not Met)	0.8/100,000	0.8/100,000	Maintain

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
2.9.2 Reduce the incidence of congenital syphilis (per 100,000 live births) (Outcome)	FY 2016: 15.7 /100,000 Target: 6.2 /100,000 (Target Not Met)	6.2/100,000	6.2/100,000	Maintain
2.9.3 Increase percentage of pregnant women screened for syphilis at least one month before delivery (Outcome)	FY 2015: 87.2% Target: 84% (Target Exceeded)	85.9%	87.2%	+1.3%

Performance Trends: CDC assures the provision of quality sexually transmitted infection (STI) services in both the public and private sectors through technical assistance, issuing and promoting clinical guidelines and recommendations, and providing education and training for health and medical professionals. CDC's STI work also supports surveillance, contact tracing, and connection to care for patients diagnosed with STIs and HIV, outbreak response, assurance of appropriate screening and treatment by providers, and providing reliable and trustworthy STI information to the general public. Data for FY 2016 show that STI cases and rates continue to rise throughout the nation, including increases in gonorrhea, chlamydia, and syphilis. The upward trajectory of STIs, coupled with reduced resources, will require CDC to further prioritize program activities and initiatives, reducing actions where necessary, and maintaining current targets.

Health departments reported more than two million cases of chlamydia, gonorrhea and syphilis to CDC in 2016, the highest number ever for the United States. Screening improvements and investments in other STI prevention strategies will avert infections and improve national health outcomes, and will prove cost-effective due to the high, and increasing, economic burden associated with STIs and their related health consequences[172]. Published estimates demonstrate that chlamydia screening among sexually active young women results in cost savings between $2,500 and $37,000 per quality-adjusted life-year.

CDC's long-term objectives are to eliminate congenital syphilis, prevent primary and secondary syphilis, prevent antimicrobial resistant gonorrhea, and prevent STI related pelvic inflammatory disease (PID), ectopic pregnancy, and infertility. Pelvic inflammatory disease is a major cause of infertility, ectopic pregnancy, and chronic pelvic pain. Infections due to Chlamydia trachomatis and Neisseria gonorrhea are major causes of PID. The number of initial visits to physicians in women aged 15–44 years diagnosed with PID decreased from 100,000 in 2009 (baseline) to 90,000 in 2016, an increase over FY 2015 (Measure 2.7.1).

Reported chlamydial infection rates among women have increased annually since the late 1980s. In part, this reflects expanded chlamydia screening activities, the use of increasingly sensitive diagnostic tests, increased emphasis on case reporting from providers and laboratories, and improvements in reporting systems. The increase may also reflect a true increase in morbidity (Measures 2.7.1-2.7.2, 2.7.6).

In previous years, CDC restricted the chlamydia prevalence estimates for females entering a national job training program to those states with greater than 100 tests among females aged 16-24 years. However, since estimates are stratified by age (16-20 and 21-24 years), in 2013 CDC began applying the same restriction (greater than 100

[172]Chesson HW, et al. The estimated direct medical cost of sexually transmitted diseases among American youth, 2000. Perspectives on Sexual and Reproductive Health 2004, 36(1): 11–19. Also: Maciosek, M, et al. Priorities Among Effective Clinical Preventive Services: Results of a Systematic Review and Analysis. American Journal of Preventive Medicine, 2006; (31) 1, 52–61.

tests) within each age group, which will improve the stability of estimates over time (Measures 2.7.2a and 2.7.2b).

- From FY 2015 to FY 2016 chlamydia screening rates among women aged 16-20 and 21-24 enrolled in Medicaid health plans and women aged 16-20 and 21-24 enrolled in commercial health plans increased.
- Among sexually-active women aged 16–20 years enrolled in Medicaid health plans, chlamydia screening rates increased from 51.2% in 2015 to 56.4% in 2016 (Measure 2.7.6a).
- Among sexually-active women aged 21–24 years enrolled in Medicaid health plans, chlamydia screening rates increased from 60.1% in 2015 to 64.9% in 2016 (Measure 2.7.6c).
- Among sexually-active women aged 16–20 years in commercial plans, chlamydia screening rates increased from 42.4% in 2015 to 44.3% in 2016 (Measure 2.7.6b).
- Among sexually-active women aged 21–24 years in commercial plans, chlamydia screening rates increased from 52.4% in 2015 to 54.8% in 2016 (Measure 2.7.6d).

CDC is collaborating with the health care sector to increase adherence to existing recommendations and developing tools for providers to increase awareness and assist with chlamydia screening implementation. Private and public health plans have improved screening rates for chlamydia, increasing slightly from 2012 to 2016. Although chlamydia test rates are increasing among sexually active women aged 15-25 years, the slower growth in chlamydia testing rates may relate to the change in the 2009 American Congress of Obstetricians and Gynecologists (ACOG) Pap testing guidelines, and possibly increases in long-acting reversible contraceptives. More than half of sexually active women aged 15-25 years did not have chlamydia testing, and the rate of increased chlamydia testing slowed after 2009. This suggests that innovative approaches to conduct chlamydia testing during wellness and preventive visits apart from Pap testing are still needed[173].

Following a 74% decline in the rate of reported gonorrhea during 1975–1997, the overall gonorrhea rate decreased to 98.1 cases per 100,000 population in 2009—the lowest rate since recording of gonorrhea rates began. However, during 2009-2012, the rate increased slightly each year, to 106.7 cases per 100,000. In 2013, the rate decreased to 105.3 cases per 100,000 population, followed by a yearly increase during 2013-2016. In 2016, a total of 468,514 cases were reported, and the national gonorrhea rate increased to 145.8 cases per 100,000, an increase of 18.5% from 2015. This is the highest number of cases reported in more than 20 years. The increase in the gonorrhea rate during 2015-2016 was observed among both males and females; however, the increase was larger among males. In 2016, among women aged 16-20, the rate of gonorrhea per 100,000 population was 586, an increase from the FY 2015 rate of 537, and among women aged 21-24, the rate of gonorrhea per 100,000 population was 573, also an increase over the FY 2015 rate of 523.9. The black: white ratio among gonorrhea in women aged 16-24 has steadily declined since 2011, with a ratio of 8.4:1 in 2016, exceeding the FY 2016 target (Measures 2.7.4a-c). A strong public health infrastructure is essential to sustain STI prevention programs and respond to increases in disease. Beyond individual and community health impacts, STIs are also an economic drain on the U.S. healthcare system. Data suggest the direct cost of treating STIs in the U.S. is nearly $16 billion annually. Preventing STIs means healthier people and billions of dollars saved by the U.S. healthcare system. Public health STI programs are increasingly facing challenges and barriers in achieving their mission, including reductions in clinic hours, contact tracing, and screening. CDC estimates that 21 local health department STI clinics closed in one recent year alone. Antimicrobial resistance remains an important consideration in the treatment of gonorrhea. In FY 2016, 86.4% of patients received treatment with a CDC-recommended antibiotic regimen for gonorrhea, falling short of the target (Measure 2.7.5).

[173]Hsieh H., et. The Impact of the American College of Obstetricians and Gynecologists Guideline Changes in Pap Tests on Annual Chlamydia Test Rates, 2017. Journal of Adolescent Health, 2017; 1-6.

CDC identified that in 2016, syphilis had increased nationally in all populations--men, women, and infants.[36] The primary and secondary syphilis (P&S) rate among women aged 15-44 increased from 3.2 cases per 100,000 in 2015 to 4.2 cases per 100,000 in 2016 (Measure 2.9.1). To prevent further increases of syphilis among women, disease intervention specialists play a critical role in identifying and responding to syphilis cases among women and their male partners through case interviews and contact tracing.

The rate of reported congenital syphilis cases has increased each year since 2012. In 2016, the congenital syphilis rate was 15.7 cases per 100,000 live births (Measure 2.9.2), the highest reported rate since 1998. This increase represents a 27.6% increase from 2015 (12.4 cases per 100,000 live births) and an 86.9% increase from 2012 (also resulting in an increase in the rate of P&S syphilis among women (111.1% increase, from 0.9 to 1.9 cases per 100,000 women) during the same period[174].

Congenital syphilis (CS) is a preventable disease, which could be eliminated through consistent and effective screening and treatment before and during pregnancy and timely treatment of infected women. The percentage of pregnant women screened for syphilis at least one month before delivery increased from 85.9% in 2014 to 87.2% in 2015 (Measure 2.9.3). Elimination of CS would contribute to reductions in lost pregnancies, stillbirths and preterm/low birth weight infants. Congenital syphilis rates decreased from 2008-2012 (10.5 to 8.4 cases per 100,000 live births), reflecting trends in rates of P&S syphilis among women during the same period, which decreased from 1.5 to 0.9 cases per 100,000 women.

Tuberculosis

Performance Measures for Long Term Objective: Decrease the rate of cases of tuberculosis (TB) among U.S. born persons in the United States

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
2.8.1 Decrease the rate of cases of tuberculosis among U.S.-born persons (per 100,000 population) (Outcome)	FY 2016: 1.1/100,000 Target: 1.2/100,000 (Target Exceeded)	1.2/100,000	1.2/100,000	Maintain
2.8.2 Increase the percentage of newly diagnosed TB patients who complete treatment within 12 months (where ≤12 months of treatment is indicated) (Outcome)	FY 2014: 90.1% Target: 88% (Target Exceeded)	92%	92%	Maintain
2.8.3 Increase the percentage of culture-positive TB cases with initial drug susceptibility results reported (Outcome)	FY 2016: 96.7% Target: 95% (Target Exceeded)	98.5%	98.5%	Maintain

[174]Centers for Disease Control and Prevention (CDC). Sexually Transmitted Disease Surveillance 2016. Atlanta: U.S. Department of Health and Human Services; 2017.

2.8.4 For contacts to sputum acid-fast bacillus smear-positive TB cases who have started treatment for newly diagnosed latent TB infection, increase the proportion of TB patients who complete treatment (Outcome)	FY 2014: 81% Target: 70% (Target Exceeded)	70%	70%	Maintain
2.T Number of state public health laboratories participating in the TB Genotyping Network (Output)	FY 2017: 50 Target: 50 (Target Met)	50	50	Maintain

Performance Trends: In 2016, data indicate there were 9,272 tuberculosis (TB) cases (2.90 per 100,000 population). Despite a recent decline in reported cases and the rate of cases (1.1/100,000) (Measure 2.8.1), progress towards eliminating TB has stalled. Tuberculosis rates remain at levels 29 times higher than our goal of eliminating this disease in the near future. CDC and its state and local partners have focused on rapidly diagnosing and treating TB disease, which has been credited with decreasing numbers of cases. Working to eliminate TB remains essential, however the leveling of TB incidence may signal the limits of what is achievable at present.

Preventing TB disease saves lives and money. A recent analysis found that from 1995-2014, TB control efforts have prevented as many as 319,000 TB cases across the U.S. Societal benefits of averted TB cases ranged from $3.1 to $6.7 billion, excluding deaths, and from $6.7 to $14.5 billion, including deaths.

In the United States, multidrug-resistant (MDR) TB is rare (only 1% of U.S. cases); however, the direct treatment cost (that does not include hospitalization) for a single case of MDR TB can reach $150,000—often more than the entire annual budget of a state or local TB program—and drug-resistant TB is increasing globally.

Data suggest that TB cannot be eliminated in the U.S. without efforts to test and treat latent TB infection (LTBI) among high-risk groups. Treatment for latent TB infection can prevent a person from developing active TB disease, which in turn protects their close protecting others from developing TB. About 86% of the U.S. cases of TB disease result from reactivated latent TB infection. CDC estimates up to 13 million people in the United States have latent TB infection and that offering testing treatment will significantly reduce future cases and ultimately eliminate TB disease in the United States. Treating latent TB infection with a short-course regimen using 3 months (12 doses) of rifapentine and isoniazid (3HP), which is shorter and more easily tolerated than the traditional 9 months of isoniazid) costs $500 and is 90% effective in preventing TB disease. TB disease costs $18,000 to treat, and can cause months of debilitating illness (including coughing up blood, fever, night sweats, and severe weight loss). CDC is working with partners to identify ways to expand targeted testing and treatment for latent TB infection.

CDC, state, and local TB programs use indicators to measure improvement on key programmatic activities to ensure that the U.S. is moving toward the U.S. goal of TB elimination (defined as less than one case per million population). In addition to preventing drug resistance, completion of treatment for TB is the most effective way to reduce the spread of TB and prevent its complications. Increasing the proportion of patients with TB disease who complete treatment is the highest priority for CDC's TB Elimination program. CDC continues to see

increases in the proportion of patients with TB disease who complete treatment within 12 months. In 2014, 90.1% of patients with TB disease completed a curative course of treatment for TB (Measure 2.8.2) within 12 months, which exceeded the target of 88%. Ninety-seven percent completed TB therapy overall, a considerable increase over the 1993 baseline of 63.4%.

Completion of therapy may be more difficult for people with other health problems such as HIV infection, diabetes, substance use disorders, and persons experiencing homelessness or who have been incarcerated. As a result, CDC allocates federal funding to provide additional resources to programs that serve larger proportions of populations where therapy may be difficult. CDC, upon request, provides technical assistance to state and local health departments addressing TB outbreaks to assure all contacts are evaluated and those with TB complete therapy. CDC is also researching innovative, technology-driven methods as part of the Antibiotic Resistance Solutions Initiative[175]. CDC is evaluating the use of smartphones or video to monitor patient treatment therapy completion.

CDC supports public health laboratory testing for drug resistance and use of Advanced Molecular Detection (AMD)[176] tools to genetically map TB specimens to develop a database to better understand and halt the spread of the disease. For example, AMD methods have enabled CDC to identify extensive ongoing TB transmission within the U.S., particularly among high-risk populations. In FY 2016, 96.7% of culture-positive TB cases underwent initial drug susceptibility testing, however did not meet the target of 98% for FY 2016 (Measure 2.8.3). CDC continues to meet its target of 50 participating state public health laboratories in the TB Genotyping Network (Measure 2.T).

Eighty-one percent of contacts to infectious TB cases who started treatment for newly diagnosed latent TB infection completed preventive treatment in 2014 (Measure 2.8.4), exceeding the target of 70%, and an 14 percent increase over FY 2013 results. CDC and TB programs are working to improve progress on this indicator in health departments by increasing use of short course regimens such as 3 months of rifapentine and isoniazid or 4 months of rifampin. In its first year, the health department focused on providing blood tests for latent TB infection to at-risk clients of the local health center. Its next steps will be to work with shelters, churches, and community centers to expand testing to a total of 2,500 people, with a goal of curing 80 percent of LTBI positive people. CDC is now working with other federal agencies, professional associations, and community health centers to implement the U.S. Preventive Services Task Force recommendation that at-risk individuals 18 years of age and older get testing for LTBI.

[175] http://www.cdc.gov/drugresistance/solutions-initiative/

[176] http://www.cdc.gov/amd/project-summaries/tuberculosis-surveillance.html

EMERGING AND ZOONOTIC INFECTIOUS DISEASES

Emerging Infectious Diseases

Performance measure for Long Term Objective: Build and Strengthen health information systems capacity in state and local health departments

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
3.5.2: Increase the percentage of laboratory reports on reportable conditions that are received through electronic means nationally (Outcome)[1]	FY 2017: 80% Target: 80% (Target Met)	82%	90%	+8

[1]Targets through FY 2018 reflect PPHF funding.

Performance measures for Long Term Objective: Protect Americans from death and serious harm caused by medical errors and preventable complications of healthcare

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
3.3.3: Reduce the central line-associated bloodstream infection (CLABSI) standardized infection ratio (SIR)[1] (Outcome)	FY 2015: 0.60 Target: 0.35 (Target Not Met)[2]	0.29[3]	0.27[3]	-0.02
3.3.2b: Reduce invasive healthcare-associated Methicillin-resistant Staphylococcus aureus (MRSA) infections[4] (Outcome)	FY 2015: 53,000 (Baseline)	40,000	37,600	-2,400

[1]The Standardized Infection Ratio (SIR) is calculated by dividing the actual (observed) infections by the expected infections using data gathered through the CDC National Healthcare Safety Network (NHSN).

[2]Baseline for this measure was updated in 2015 which will affect future targets and data reporting for 2016 and onward. This measure will be retired in the FY 2020 budget cycle and replaced with an updated CLABSI measure. The new targets will be adjusted accordingly to align with the updated HHS HAI Action Plan targets.

[3]Current 2018 CLABSI target is based on the old 2006-2008 baseline; revisions to update this target are pending.

[4]All invasive MRSA infections captured are bloodstream infections. The targets align with Combating AR Bacteria Action Plan (CARB) targets and HHS HAI Action Plan targets.

Emerging Infectious Performance Trends: Advancing national implementation of Electronic Laboratory Reporting (ELR) is a priority in CDC's efforts to protect the public's health. ELR replaces paper-based reporting, which accelerates reporting to public health labs; reduces the reporting burden on clinicians, hospitals, and commercial laboratories; and decreases errors and duplicate reporting. As of FY 2017, electronic laboratory reports accounted for nearly 80% of laboratory reports for reportable conditions received, which exceeds FY 2016 results and continues the upward trend since FY 2012 (Measure 3.5.2).

As of the end of 2017, the national average for ELR is expected to be very close to 90%. There are diminishing returns if trying to push the ELR volume number higher than 90%, therefore the program considers moving from 62% in 2013 to 90% as a success and will be putting effort into new measures such as electronic case reporting. For this reason, beginning in 2020, a new measure will be proposed to replace Measure 3.5.2.

CDC provides national leadership in healthcare-associated infection (HAI) prevention and provides the scientific foundation to preserving quality care, improving patient safety, and advancing U.S. healthcare practices. Adherence to CDC guidelines is the standard of care for HAI prevention for infections such as central line-

associated bloodstream infection (CLABSI), catheter-associated urinary tract infection (CAUTI), surgical site infection (SSI), and invasive methicillin-resistant *Staphylococcus aureus* (MRSA) infections.

Reducing HAIs across all healthcare settings supports HHS' mission to prevent infections and its complications as well as reduce excess healthcare costs in the U.S. These efforts also align with the National Action Plan to Prevent Healthcare Associated Infections: Roadmap to Elimination (National HAI Action Plan),[177] and Healthy People 2020 Goals[178]. Between CY 2008 and CY 2015, CLABSIs decreased 40% nationally in U.S. hospitals (Measure 3.3.3). While the overall SIR of 0.60 falls short of the 2015 target, CDC continues to move forward to meet the goals in the National HAI Action Plan. In 2015, CDC developed a new baseline for all HAIs including CLABSI to better assess national and local prevention progress and identify gaps for tailored prevention. Beginning with 2015 data, HAI prevention progress will be measured to the new baseline. CDC will shift the national CLABSI targets for Measure 3.3.3 to incorporate these changes in future performance documents.

CDC replaced Measure 3.3.2a with a more nationally representative MRSA measure to estimate the overall number of healthcare-associated invasive MRSA cases in both hospital- onset and healthcare-associated community onset settings. As of March 2017, CDC provided an actual 2015 baseline of 53,000 infections for this measure and updated the FY 2018 and FY 2019 targets to reflect this change (Measure 3.3.2b). CDC will continue to work with public health and healthcare partners to reduce these infections across healthcare settings.

Vector-borne Diseases

Performance measure for Long Term Objective: Protect Americans from Infectious Diseases—Vector-borne

Measure	Most Recent and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
3.G: Cumulative number of tests performed worldwide to diagnose bacterial, viral, and rickettsial infections transmitted by mosquitoes, ticks, and fleas using CDC-produced reagents (Outcome)	FY 2016: 3,375,940 Target: 2,158,075 (Target Exceeded)	3,158,075	3,658,075	+500,000

Vector-borne Performance Trends: CDC serves as a national and international leader in the prevention of vector-borne viral, bacterial, and rickettsial diseases. Part of CDC's prevention strategy in this area is to annually produce reagents for diagnosing a variety of vector-borne pathogens. State and international laboratories use these important reagents to perform rapid, accurate testing necessary for the early detection and suppression of epidemics. This function has become increasingly important, as the domestic emergence of vector-borne diseases has accelerated in the last decade (West Nile Virus: 1999; Chikungunya Virus: 2014; Dengue Virus re-emergence: 2015; Zika Virus: 2016).

In 2016, CDC exceeded its target and facilitated 3,375,940 tests worldwide to diagnose bacterial, viral, and rickettsial infections (Measure 3.G). While more than double the number of tests facilitated in FY 2015, this result was unusually high due to CDC's ongoing response to the Zika outbreak. CDC aims to support the completion of 500,000 additional tests each year, above the baseline capacity levels as assessed in 2014. Though ambitious, CDC considers these targets to be realistic and achievable.

[177]https://health.gov/hcq/prevent-hai-action-plan.asp

[178]https://www.healthypeople.gov/2020/topics-objectives/topic/healthcare-associated-infections

Antibiotic Resistance

Performance measure for Long Term Objective: Reduce the spread of antimicrobial resistance

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
3.2.3: Decrease the proportion of hospitals with carbapenem-resistant *Klebsiella spp.* or *Escherichia coli* (E.coli) healthcare-associated infections (Outcome)	FY 2016: 9.5% Target: 5.7% (Target Not Met, but Improved)	9.0%[1]	8.5%[1]	-0.5%
3.2.4a: Reduction in community-onset *Clostridium difficile* infections standardized infection ratio (SIR) (Outcome)	FY 2015: 1.00 (Baseline)[2]	0.75[3]	0.70[3]	-0.05
3.2.4b: Reduction in hospital-onset *Clostridium difficile* infections standardized infection ratio (SIR) (Outcome)	FY 2015: 1.00 (Baseline)[2]	0.75[3]	0.70[3]	-0.05
3.2.5: Increase the percentage of hospitals reporting implementation of antibiotic stewardship programs fully compliant with CDC Core Elements for Hospital Antibiotic Stewardship Programs[4] (Outcome,)	FY 2016: 64% Target: 50.0% (Target Exceeded)	68.8%	84.4%	+15.6

[1]FY 2018 and FY 2019 targets were adjusted higher to reflect recent programmatic changes. CDC expects an intermediate increase in the number of hospitals reporting at least one instance of CRE due to greater surveillance and lab capacity to detect and identify novel and emerging forms of CRE.

[2]Measures 3.2.4a and 3.2.4b baselines have been updated to align to changes in the 2015 HHS HAI Action Plan.

[3]FY 2018 and FY 2019 targets for measures 3.2.4a and 3.2.4b reflect proposed changes to program resources for antibiotic resistance.

[4]CDC is using a new criteria to calculate data as part of the 2016 version of the NHSN survey. The 2014 baseline was adjusted to reflect this criteria. Targets are aligned with the National Action Plan for CARB.

Antibiotic Resistance Performance Trends: CDC provides the common defense of the country against emerging health threats and is a leader in the fight to combat antibiotic resistance. CDC is committed to protecting America's health, safety, and interests through science, surveillance, and services. Antibiotic resistance (AR) is a growing crisis internationally, and some AR infections are already untreatable. In 2016, about 64% of U.S. acute care hospitals reported having an antibiotic stewardship program that incorporates all of the CDC Core Elements for Hospital Antibiotic Stewardship Programs (Measure 3.2.5). Thus, CDC exceeded its 2016 target and is on track to meet its 2017 target. CDC will continue to work with public and private partners to encourage hospitals to continue implementing antibiotic stewardship programs that are fully compliant with CDC Core Elements for Hospital Antibiotic Stewardship Programs to improve healthcare, decrease health consequences (e.g., *C. difficile* infections), and ultimately prevent antibiotic resistance.

Carbapenem-resistant *Enterobacteriaceae* (CRE), “the nightmare bacteria,” are a group of bacteria resistant to almost all drugs. Because of limited treatment options, CRE bloodstream infections can be fatal in nearly half of all cases. Measure 3.2.3 includes all hospitals (acute care and long-term acute care facilities) reporting at least one HAI (CLABSI, CAUTI, or SSI) with emerging carbapenem-resistance in *Klebsiella spp* or *E.coli* to the National Healthcare Safety Network (NHSN). Though CDC did not meet its FY 2016 target of 5.7% for this measure, 2016 data indicated a slight decrease in these infections reported across all acute-care hospitals. These results may have been due to CDC's ongoing "containment" efforts (as part of CDC's AR Solutions Initiative) to stop and contain highly resistant pathogens with important resistance elements (e.g., CRE and *Candida Auris*) from spreading across U.S. healthcare facilities. CDC has also made recent investments to better detect, track, and

respond to CRE infections at the state and local levels, and therefore, expects an intermediate increase in the number of hospitals reporting at least one instance of this type of CRE in the upcoming years. Now that CDC and states have greater surveillance and lab capacity to detect and identify novel and emerging forms of CRE, CDC plans to revise and update this performance metric next year to better measure overall prevalence of this type of CRE resistance for CLABSI and CAUTI in acute-care hospitals.

Clostridium difficile infection (CDI)[179] is a preventable, life-threatening bacterial infection that can occur in both inpatient and outpatient healthcare settings. CDC provides data-driven strategies and tools for targeted intervention to the healthcare community to help prevent CDI, as well as resources to help the public safeguard their own health. CDI prevention is a national priority, with a 2020 target to reduce CDI by 50% in the National Action Plan for CARB and the 2015 National HAI Action Plan[180]. To better identify and make improvements to prevention efforts for CDI nationwide, CDC created a new CDI metric that consists of two sub-measures: community-onset CDI and hospital-onset CDI (Measures 3.2.4a and 3.2.4b). Starting at an initial baseline of 1.00 for both in 2014, progress in each of the CDI sub-measures will assist CDC in targeting resources to where there is the greatest need to make the most impact. The baseline year for these measures changed from 2014 to 2015 to align to changes in the 2015 HHS HAI Action Plan.

Food Safety

Performance measures for Long Term Objective: Protect Americans from infectious diseases – foodborne illnesses[1]

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
3.1.1b: Reduce the incidence of infection with three key foodborne pathogens: Escherichia coli O157:H7 (Outcome)	FY 2016: 1.03 Target: 0.8 (Target Not Met)	0.70	0.65	-0.05
3.1.1c: Reduce the incidence of infection with three key foodborne pathogens: Listeria monocytogenes (Outcome)	FY 2016: 0.26 Target: 0.23 (Target Not Met)	0.21	0.21	Maintain
3.1.1d: Reduce the incidence of infection with three key foodborne pathogens: Salmonella species (Outcome)	FY 2016: 16.66 Target: 12.67 (Target Not Met)	12.03	11.72	-0.31
3.F: Cumulative number of states providing reports of confirmed norovirus outbreaks to Calicinet (Output)	FY 2017: 28 Target[2]: 28 (Target Met)	28	28	Maintain

[1]CDC aligns its Food Safety targets with national targets for Healthy People 2020 objectives. The unit of measure for 3.1.1b, 3.1.1c, and 3.1.1d is the number of cases per 100,000 people.

[2]Laboratories in 28 states and DC participate in CaliciNet. Beginning in 2013, 22 additional states have been supported through five CaliciNet Regional Outbreak Support Centers to provide coverage in all 50 states.

Performance Trends: Significant progress in reducing the incidence of major foodborne infections over the last 25 years is a result of concerted prevention efforts by CDC, federal partners, and private industry. Between the 1996-1998 baseline and FY 2015, the incidence of *Escherichia coli* (E. coli) O157:H7 and *Listeria* decreased. The FY 2016 E. coli O157:H7 rate of 1.03 cases per 100,000 people represents an increase from the previous year's result, but still falls below the Healthy People 2020 baseline of 1.2 (Measure 3.1.1b). A wide variety of foods may be responsible for ongoing infection of *E. coli* O157:H7. Intensive and long-term efforts from CDC, FDA, the U.S.

[179]http://www.nejm.org/doi/full/10.1056/NEJMoa1408913
[180]https://health.gov/hcq/prevent-hai-action-plan.asp

Department of Agriculture Food Safety Inspection Service (USDA FSIS), and food industries will be required to reduce the incidence of E. coli O157:H7 moving forward. CDC is increasing its engagement with these stakeholders to encourage improvements in food safety practices.

The rate of *Listeria* infections for 2016 was 0.26 cases per 100,000 people, representing a slight increase from the previous year's result (Measure 3.1.1c). While CDC did not meet its 2016 target of 0.23 cases per 100,000 people for the reduction of *Listeria* infections, this new result reflects an overall decrease in infections since 2011 of 0.04 cases per 100,000 people. Since the introduction of the *Listeria* Initiative[181], the size of *Listeria* outbreaks has decreased, reflecting faster and more efficient investigations. CDC's Advanced Molecular Detection (AMD) Initiative, in partnership with the National Institutes of Health (NIH), FDA, USDA FSIS, and state partners added a new component to the *Listeria* Initiative: sequencing and analyzing of clinical, food, and environmental *Listeria monocytogenes* isolates sent to PulseNet, using Whole Genome Sequencing methods in near real-time. This collaboration helps CDC identify outbreaks of *Listeria* infections more rapidly, supports related investigation efforts to detect additional cases, and identifies the source(s) of infection. Since September 2013, CDC has sequenced more than 3,800 *Listeria* samples, and analyzed nearly 9,000 genomes from CDC and FDA as part of *Listeria* outbreak detection and investigation activities. CDC is working with FDA, USDA, FSIS, and the food industry to translate findings into safer food to prevent more illnesses. By the end of calendar year 2020, CDC funded PulseNet laboratories in states will sequence all bacterial isolates that come into the PulseNet system, including all isolates of *Listeria*, *Salmonella*, *E. coli*, and *Campylobacter*.

CDC did not meet its FY 2016 target of 12.67 cases per 100,000 people for *Salmonella* infections (Measure 3.1.1d). Although this represents an increase, *Salmonella* infection rates are 5% lower than their FY 2010 rates. CDC will continue coordinating public health surveillance and foodborne outbreak investigations to inform important actions needed to reduce *Salmonella* incidence, including:

- FDA's proposed Food Safety Modernization Act (FSMA) required rules to reduce illnesses caused by *Salmonella* and other pathogens in produce and in processed foods;
- USDA's efforts to improve the safety of poultry products, including its proposed *Salmonella* reduction rule;
- Food industry's new strategies to reduce *Salmonella* contamination in food, particularly in chicken, which is an important source of *Salmonella*-related illnesses; and
- Consumers' increased knowledge and awareness of their role in food safety.

In the future, CDC will retire measures 3.1.1b, 3.1.1c and 3.1.1d and replace them with measures that better reflect CDC's investments in new technologies and enhanced investigation tools to improve outbreak detection and response.

CDC uses the CaliciNet[182] national surveillance system to detect and characterize norovirus outbreaks by supporting state and territorial public health laboratories. CDC met its target of 28 states providing confirmed norovirus outbreak data to CaliciNet in FY 2017. Additionally, the combined testing efforts of state public health labs and the CaliciNet Regional Support Centers covered all 50 states (Measure 3.F).

[181] http://www.cdc.gov/listeria/pdf/listeriainitiativeoverview_508.pdf
[182] http://www.cdc.gov/norovirus/reporting/calicinet/

National Healthcare Safety Network

Performance measure for National Healthcare Safety Network

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
3.3.4: Increase the number of hospitals and other selected health care settings that report into the National Healthcare Safety Network (NHSN) (Output)	FY 2016: 20,000 Target: 19,000 (Target Exceeded)	22,000	23,000	+1,000

Performance Trends: CDC's National Healthcare Safety Network (NHSN) is the nation's most comprehensive and widely used HAI surveillance and quality improvement system. NHSN data drive HAI prevention and improve quality of care at local, state, and national levels, supporting goals mentioned in the National Action Plan for CARB, and the HHS HAI Action Plan to protect American lives. NHSN data are also used by the following partners:

- Healthcare professionals to improve quality of patient care,
- State health departments to comply with state reporting requirements and to target HAI prevention efforts,
- The Centers for Medicare and Medicaid Services (CMS) to implement and tailor interventions through CMS' improvement programs (e.g., Quality Improvement Networks and Hospital Improvement Innovation Networks) to prevent infections in all healthcare settings, and
- The Agency for Healthcare Research and Quality to evaluate HAI implementation strategies in healthcare.

CDC continues to enroll healthcare facilities in NHSN to report HAIs including those caused by resistant bacteria. As of November 2017, over 22,000 facilities are reporting data in NHSN, exceeding its FY 2017 target by 2,000 facilities (Measure 3.3.4). CDC provides support to over 22,000 healthcare facilities reporting data for HAI prevention and is positioned to meet FY 2018 and FY 2019 targets.

In addition, CDC tracks the whole scope of critical HAIs/AR infections (e.g., MRSA, CLABSI, CAUTI, SSI, and *C. difficile*) being captured in NHSN by healthcare facilities as well as the number of reporting modules (e.g., antibiotic use, and antibiotic resistance data) being used across multiple healthcare settings to prevent infections, enhance healthcare quality, and improve patient care.

Quarantine and Migration

Performance measures for Long Term Objective: Prevent the importation of infectious diseases to the U.S. in mobile human, animal and cargo populations

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
3.4.4: Increase of the percentage of immigrants and refugees with a "Class A or B medical notification for tuberculosis" who undergo medical follow-up after arrival in U.S. (Outcome)	FY 2016: 78% Target: 85% (Target Not Met)	80%	80%	Maintain

3.4.8: Increase the proportion of U.S.-bound refugees with at least one dose of age-appropriate routine vaccinations[1] (Outcome)	FY 2016: 72.2% Target: 70% (Target Exceeded)	70%	73%	+3

[1]Measure 3.4.8 only assesses the proportion of refugees that receive at least one round of required vaccinations; it does not track parasitic treatment.

Performance Trends: CDC enhances the public health security of U.S. communities and addresses infectious disease risks associated with international travel and globally mobile populations by executing regulatory responsibilities and implementing cost-effective public health programs, in collaboration with local, state, and federal partners, to prevent the importation and spread of disease into and within the United States.

Annually, CDC provides around 100,000 notifications to state and local health departments concerning public health follow-up exams for individuals coming to live and work in the United States. Following declines in FY 2014 and 2015, the percentage of immigrants and refugees with a TB notification receiving medical follow-up after arrival in the U.S. held steady at 78% in FY 2016 (Measure 3.4.4). CDC will increase its engagement with state partners to promote increased notification rates.

Improving refugee vaccination prior to resettlement is a key public health priority for CDC as it is cost-effective, prevents the importation of infectious diseases, and improves the public health security of U.S. communities. In FY 2016, 72.2% of U.S.-bound refugees received at least one dose of age-appropriate routine vaccination (Measure 3.4.8). This increased proportion of refugees receiving vaccinations reflects the successful expansion of activities from 6 countries in FY 2015 to over 20 countries in Asia, Africa, Europe, and the Middle East in FY 2016. Future targets reflect the objective to expand this vaccination program over time to include more countries with significant U.S.-bound refugee populations, or to provide additional vaccinations to refugees currently covered by the program, recognizing the cost effectiveness and public health value of increasing proportion of all vaccination services being delivered prior to arrival in the United States.

CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION

Chronic diseases are the leading causes of death and disability in the United States, and account for 70% of all deaths annually (almost 1.7 million). These diseases also cause major limitations in daily living for approximately one out of every ten people. The contextual indicators below track long-term health outcomes influenced by CDC's Chronic Disease Prevention and Health Promotion program.

Contextual Indicator	Most Recent Result	FY 2020 Target
Coronary Heart Disease: Reduce the annual age-adjusted rate of coronary heart disease deaths (per 100,000 population)	FY 2014: 98.8	103.4
Stroke: Reduce the annual age-adjusted rate of stroke deaths (per 100,000 population)	FY 2014: 36.5	34.8
Diabetes: Reduce the annual age-adjusted rate of diabetes-related deaths (per 100,000 population)	FY 2014: 67.1	66.6

Over the past decade, CDC has worked to improve cardiovascular health and reduce coronary heart disease and stroke mortality through its support of cross-cutting public health strategies and leveraging resources to develop partnerships that promote healthy lifestyle behaviors, environments and communities. CDC has also established relationships between clinical practices and the community to improve healthcare quality.

From 2000 to 2014, the annual age-adjusted death rate for coronary heart disease steadily declined from 186.9 to 98.8 per 100,000. During the same time frame, the annual age-adjusted rate of stroke deaths declined from 60.8 to 36.5 per 100,000. From 2013-2014, there was a negligible increase, but the trend is still significantly down from baseline. From 2005 to 2014, the age-adjusted rate of diabetes-related deaths also declined from 77.0 to 67.1 per 100,000.

CDC attributes these successes to improvements in contributing factors including reductions in per capita cigarette smoking, improvements in the integration of clinical and other preventive services, expansion of clinical and community-based resources, support for self-management of chronic diseases and conditions, and advancement of environmental approaches to promote health and reinforce healthy behaviors. CDC's inter-related programs focus not only on specific diseases, but also on those risk factors that contribute to chronic diseases and conditions at all stages of life.

Tobacco Prevention and Control

Performance Measures for Long Term Objective: Reduce death and disability due to tobacco use[1]

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.6.2a Reduce the annual adult per-capita combustible tobacco consumption in the United States (Intermediate Outcome)	FY 2016: 1,164 Target:1,145 (Target Not Met but Improved)	967	903	-64
4.6.3 Reduce the proportion of adults (aged 18 and over)	FY 2016: 15.5% Target: 16% (Target Exceeded)	13.5%	12.8%	-0.7

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
who are current cigarette smokers (Intermediate Outcome)				
4.6.4 Increase proportion of the U.S. population that is covered by comprehensive state and/or local laws making workplaces, restaurants, and bars 100% smoke-free (no smoking allowed, no exceptions) (Intermediate Outcome)	FY 2016: 57.9% Target: 58.7% (Target Not Met but Improved)	59.1%	61.1%	+2.0
4.6.5a Reduce the proportion of adolescents grades 6 through 12 who are current users of any tobacco product (Outcome measure)	FY 2016: 14.5% (Baseline)	15.6%	15.4%	-0.2
4.6.8 Increase the proportion of ever cigarette smokers aged ≥ 18 years who are former cigarette smokers (quit ratio) (outcome)	FY 2016: 59.0% (Baseline)	61.3%	62.4%	+1.1

[1] Targets may include budget authority and/or PPHF funding.

Performance Trends: Although cigarette smoking remains the leading cause of preventable disease and death in the United States, the tobacco product use landscape continues to diversify to include multiple combustible tobacco products, including cigars, cigarillos and little cigars, pipe tobacco, roll-your-own tobacco, and hookah. This has resulted in a slowing of the decline in the consumption of all combustible tobacco, and indicates that the use of non-cigarette combustible products has become more common in recent years and that some smokers may be switching to other combustible tobacco products rather than quitting smoking cigarettes completely. Per capita combustible tobacco product consumption declined from 1,216 cigarette equivalents in FY 2014 to 1,164 cigarette equivalents in FY 2016, though slightly above the FY 2016 target (Measure 4.6.2a). Additionally, the percentage of current adult smokers decreased from 20.6% in 2009 to 15.5% in FY 2016, exceeding the FY 2016 target (Measure 4.6.3).

In FY 2019, CDC is introducing a new performance measure to more accurately reflect the diversification and full scope of tobacco products being used by U.S. youth, including combustible, non-combustible, and electronic tobacco products (Measure 4.6.5a). Nearly all tobacco product use begins during youth and young adulthood. In 2016, an estimated 3.9 million (14.5%) U.S. middle and high school students currently used any tobacco product, with 1.8 million reporting current use of ≥2 tobacco products. E-cigarettes are the most commonly used tobacco product among U.S. youth.

The first performance data for the new measure will be for FY 2017 and will be reported in calendar year 2018. Because this new measure more accurately reflects all types of tobacco product use by youth in grades 6 through 12, CDC is retiring measures 4.6.5 (proportion of adolescents grades 9 through 12 who are current cigarette smokers), 4.6.6 (e-cigarette use among middle school students) and 4.6.7 (e-cigarette use among high school students). To prevent all forms of youth tobacco product use, CDC will focus on continuing surveillance to inform public health planning and practice, developing and enhancing the scientific evidence on youth tobacco product use, and educating the public (especially parents and health care providers) about the importance of preventing youth tobacco product use.

The adverse health effects of tobacco smoking are not limited to the user. Exposure to secondhand smoke from burning tobacco products causes significant disease and death; there is no risk-free level of secondhand smoke exposure. On average, smoke-free policies in states and communities that prohibit tobacco smoking in public indoor areas have been found to contribute to a 17% reduction in heart attack hospitalizations. Between FY 2005 and FY 2017, the population covered by comprehensive smoke-free laws that prohibit smoking in all indoor areas of bars, restaurants, and private worksites more than tripled so that 57.9% are now covered (Measure 4.6.4). This is an eight percentage point improvement over FY 2016 and nearly met the FY 2017 target. While progress has been made, 42.1% of the population is still exposed to secondhand smoke and only 27 states and the District of Columbia have comprehensive smoke-free indoor air laws as of June 30, 2017. CDC will continue to supply credible evidence showing the dangers of secondhand smoke, as well as proven interventions to reduce exposure, which provide a strong foundation for state and community efforts to promote smoke-free environments. CDC publications provide the science that informs the activities of CDC's National Tobacco Control Program (NTCP), a nationwide investment that supports all 50 states, the District of Columbia, 8 U.S. territories, and 12 tribal organizations for comprehensive tobacco control efforts including reducing secondhand smoke exposure. Credible evidence showing the dangers of secondhand smoke, as well as proven interventions to reduce exposure, has provided a strong foundation for state and community efforts to promote smoke-free environments. For every $1 spent on strong tobacco control programs, states achieve a $55 return on investment, mostly in averted health care costs to treat smoking related illness.

CDC also provides direct assistance to help tobacco smokers quit through National Tobacco Quitlines. In March 2012, CDC launched the first-ever paid, national tobacco education campaign, Tips from Former Smokers® (Tips®). The Tips® campaign profiles real people who are living with serious long-term health effects due to smoking and secondhand smoke exposure.

However, despite the strong influence of Tips in directing smokers to quitlines while on air, there have been variances in total annual quitline call volume from 2010-2016, likely due to fluctuations in state funding for quitline services and promotions during these years. Annual calls to quitlines peaked in 2012 and 2013 but have tapered off since; however, calls to quitlines were higher in 2015 and 2016 than in 2010 and 2011 (the two years prior to the Tips® campaign). In addition, state quitlines are increasingly offering a variety of channels for accessing cessation services, including web and mobile services, and some smokers are likely using these alternatives instead of calling quitlines. Recent findings indicate that the quit ratio, or the proportion of former smokers to ever smokers, has increased steadily in recent years. In FY 2019, CDC will retire measures 4.C and 4.D and replace them with measure 4.6.8, which captures a more accurate picture of total quit successes nationally, regardless of the quit method used, and better addresses the diversity of efforts being undertaken by CDC to achieve cessation among the public. In FY 2017 there was a 59% quit ratio regarding the proportion of cigarette smokers ≥18 years who are former cigarette smokers (Measure 4.6.8). CDC will continue to provide resources to state quitlines as part of its National Tobacco Control Program, as well as state tobacco control programs, and CDC will continue the Tips from Former Smokers® campaign on national TV, radio, print, digital, and out-of-home media.

Nutrition, Physical Activity, and Obesity

Performance Measures for Long Term Objective: Promote evidence-based interventions to improve nutrition, increase physical activity, and reduce obesity

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.11.7 Increase the proportion of infants that are breastfed at 6 months (Intermediate Outcome)	FY 2014: 55.3% Target: 57.3% (Target Not Met but Improved	63.8%	65.4%	+1.6
4.11.8a Increase the contribution of vegetables to the diets of the population aged 2-18 years (cup equivalents per 1,000 calories)[1] (Intermediate Outcome)	FY 2014: 0.54 (Baseline)	0.78	N/A	N/A
4.11.8b Increase the variety of vegetables to the diets of the population aged 19 years and older (cup equivalents per 1,000 calories)[1] (Intermediate Outcome)	FY 2014: 0.81 (Baseline)	0.94	N/A	N/A
4.11.9 Increase the proportion of adults (age 18 and older) that engage in leisure-time physical activity (Intermediate Outcome)	FY 2016: 73.1% Target: 73.2% (Target Not Met but Improved)	73.8%	74.1%	+0.3
4.11.10a Reduce the age-adjusted proportion of adults (age 20 years and older) who are obese[1] (Intermediate Outcome)	FY 2016: 39.6 % Target: 33.2% (Target Not Met)	33.0%	N/A	N/A
4.11.10b Reduce the proportion of children and adolescents (ages 2 through 19) who are obese[1] (Intermediate Outcome)	FY 2016: 18.5% Target: 15.7% (Target Not Met)	15.2%	N/A	N/A
4.12.1 Increase in the number of states with nutrition standards for foods and beverages	FY 2016: 29 Target: 38 (Target Not Met but Improved)	42	42	Maintain

provided in early care and education centers (Output)				
4.12.4 Increase the number of states with physical education standards that require children in early care and education centers to engage in vigorous- or moderate-intensity physical activity (Output)	FY 2016: 14 Target: 18 (Target Not Met but Improved)	18	18	Maintain

[1]Targets and results are set and reported biennially.

Performance Trends: Breastfeeding: Breastfeeding rates are improving. The proportion of infants that are breastfed at 6 months (Measure 4.11.7) increased from 44.4% in FY 2008 to 55.3% in FY 2014, missing the target, but demonstrating progress. To meet its targets, CDC will continue to support birthing hospitals, worksites, and communities in implementing policies and practices that help women breastfeed. CDC funds all states and the District of Columbia to improve support for women who choose to breastfeed. CDC investments assist 93 U.S. hospitals in safely implementing evidence based maternity care practices that support breastfeeding. These investments have contributed to improvements in initiation and duration of breastfeeding. As of November 2017, 22% of all U.S. births (~894,000 babies per year) were occurring at hospitals with policies and practices that support breastfeeding (a designation based on adherence to a set of practices) as a result of CDC's promotion of evidence-based policies and maternity care practices. This percentage of births occurs at 467 hospitals across 50 states, Washington, D.C., and Puerto Rico, and is more than double the Healthy People 2020 target (8.1%).

Early Care and Education (ECE): Annually, 41% of children (birth through 5 years) participate in either center-based or family home-based childcare and early education programs. There are national standards for physical activity and nutrition for the ECE setting. In FY 2011, only six states had policies that required ECE programs statewide to meet at least one of three select national physical activity standards (Measure 4.12.4) and eight states had policies that required ECE programs to meet at least two of eight select national nutrition standards (Measure 4.12.1). In FY 2016, although the targets were not met, 14 states had adopted physical activity standards policies and 29 states had adopted nutrition standards policies. CDC will continue to work towards meeting its targets by investing in and providing assistance to states adopting physical activity and nutrition standards. As of February 2017, CDC expanded work on specific activities designed to have statewide impact through embedding nutrition and physical activity standards or implementation support for these standards into their state ECE system, bringing the total from six to 13 states. CDC also supports professional development opportunities for ECE providers through the development of on-demand online training modules in partnership with Penn State University's Better Kid Care (BKC) program. By FY 2018, six new modules will be launched; the first was released in November 2017 and the remaining modules will be available by spring 2018 on the BKC professional development system[183].

Healthy Eating: The total vegetable intake remains low for all populations. Baseline data indicate in 2013-2014 children age 2-18 years consumed 0.54 cup equivalents of vegetables per 1,000 calories and adults consumed 0.81 cup equivalents per 1,000 calories (Measures 4.11.8a-b). Making progress in improving diet is challenging given the complex and multiple factors that influence the marketing of, access to, affordability of, and consumption of both healthy and less healthy food options. CDC will continue to work with state, local, tribal,

[183]http://extension.psu.edu/youth/betterkidcare/early-care

and territorial health departments to help worksites, schools, childcare, and community settings to provide information about healthy food and beverage choices for people of all ages.

Active Living: The proportion of adults who engage in leisure-time physical activity increased from 63.8% in FY 2008 to 73.1% in FY 2016 (Measure 4.11.9). The proportion of adults that meet current aerobic physical activity guidelines increased from 43.5% in 2008 to 52.6% in 2016, reducing the risk for many chronic diseases. CDC will continue to promote the critical need for safe and easy places for physical activity to take place and help implement high impact strategies for walking and walkable communities like Complete Streets and Safe Routes to Schools. As of November 2017, over 940 agencies at the local, regional, and state levels have adopted Complete Streets policies and one in five elementary schools now have a Safe Routes to Schools program.

Obesity: CDC funds a number of interventions that target obesity as well as related chronic diseases. The percentage of all children and adolescents (ages two to 19 years) that have obesity increased from 16.8% in FY 2008 to 18.5% in FY 2016 (Measure 4.11.10b). In children ages 2 to 5, the prevalence of obesity has fluctuated over time. Following a significant decrease from 13.9% in 2003-2004 to 8.9% in 2011-2014, the prevalence of obesity increased to 13.9% in 2015-2016. Research shows behaviors that influence excess weight gain include eating high-calorie, low-nutrient foods and beverages, not getting enough physical activity, sedentary activities such as watching television or other screen devices, medication use, and sleep routines. Public health practitioners can educate individuals about healthy lifestyle choices and ways to improve their diet and increase physical activity. However, it can be difficult for children and parents to make healthy food choices and get enough physical activity. Places such as childcare centers, schools, or communities can affect diet and activity through the foods and drinks offered and the opportunities provided for physical activity. CDC will continue promoting good nutrition and physical activity in children and adolescents to help prevent childhood obesity.

In addition, through initiatives such as the Childhood Obesity Research Demonstration (CORD) project, CDC will continue to study and promote ways to prevent childhood obesity. These programs will help low-income children improve their obesity-related behaviors, reduce their weight gain, and reduce their risk of developing sleep apnea, joint problems, and diseases such as fatty liver and type 2 diabetes. In Massachusetts, initial results from three settings demonstrate some success preventing childhood obesity. More recent projects are focused on strengthening clinical-community collaborations to improve obesity screening and counseling services for children in select communities.

In adults, 2015-2016 NHANES data show 39.6% had obesity, an increase from the proportion of obese adults in FY 2014 (37.7%) (Measure 4.11.10a). There are some community factors that affect diet and physical activity. This includes the affordability and availability of healthy food options (e.g. fruits and vegetables), peer and social supports, marketing and promotion, and policies that determine whether a community is designed to support physical activity. CDC will continue to implement evidence-based strategies to help increase healthy eating and active living through its support for states and communities throughout the U.S.

School Health

Performance Measures for Long-Term Objective: Improve the health and well-being of youth and prepare them to be healthy adults

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.12.5 Increase the number of states that have developed and adopted a state-level multi-component physical education policy for schools[1] (Output)	FY 2014: 10 Target: 8 (Target Exceeded)	16	N/A	N/A
4.12.6 Increase the percentage of schools that do not sell less healthy foods and beverages (soda pop or fruit drinks, baked goods, salty snacks, candy)[1] (Outcome)	FY 2016: 67% Target: 70% (Target Not Met)	69%	N/A	N/A

[1]Targets and results are set and reported biennially.

Performance Trends: Obesity rates among school-aged children and adolescents have more than tripled since 1980. The prevalence of obesity is higher among youth aged 6-11 years (18.4%) and adolescents aged 12-19 years (20.6%) compared with children aged 2-5 years (13.9%). The 2015 Youth Risk Behavior Survey shows that approximately 30% of high school students are in the categories of overweight or obese, demonstrating the need for CDC's Healthy Schools Program continued focus on childhood obesity prevention. Most of our nation's children attend school for 6 hours a day and consume as much as half of their daily calories at school, making schools an essential setting to reverse the steady increase in childhood obesity and to promote health for all students. CDC promotes effective strategies including establishing a Comprehensive School Physical Activity Program with physical education as the foundation, supporting healthy eating in schools through a Comprehensive Framework and improving school health services to address obesity and other chronic conditions.

Physical Education: Measure 4.12.5 tracks the establishment of policies that align with CDC's School Health Guidelines to Promote Healthy Eating and Physical Activity and the recommendations of the American Heart Association and SHAPE America. In FY 2014, 10 states established the requisite number and composition of multi-component policies, exceeding CDC's target of eight states, and a 100% increase over baseline.

Nutrition Environment: Students attending schools that sell high-calorie, low nutrient foods and beverages outside the school food service program have lower intake of fruits, vegetables, and milk at lunch and higher daily percentage of calories from total fat and saturated fat[184]. Measure 4.12.6 is based on Institute of Medicine (IOM) standards that exceed the U.S. Department of Agriculture (USDA) Smart Snacks standards, and tracks the percentage of schools limiting student purchases from vending machines, school stores, canteens, or snack bars to healthier snack foods and beverages. In FY 2016, 67% of secondary schools sold only nutritious foods outside

[184]https://www.cdc.gov/healthyyouth/data/profiles/pdf/2016/2016_Profiles_Report.pdf

of the school food service program. This represents a 10% increase from FY 2014. It did not meet the target of 70%, but there was significant improvement over the previous result.

Heart Disease and Stroke

Performance Measures for Long Term Objective: Reduce risk factors associated with heart disease and stroke[2]

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.11.5 Increase the age-adjusted proportion of persons age 18+ with high blood pressure who have it controlled (<140/90) (Intermediate Outcome)	FY 2016: 42.8%[2] Target: 56% (Target Not Met)	58.6%	59.9%	+1.3
4.11.6 Reduce consumption of sodium in the population aged 2 years and older (milligrams per day) (Intermediate Outcome)	FY 2014: 3,409[1] Target: 2,940 (Target Not Met)	2,900	2,900	Maintain
4.N1 Increase the percentage of at risk women who received at least one evidence-based healthy behavior support service (Output)	FY 2015: 61.0%[3] Target: 60.0% (Target Exceeded)	60%	60%	Maintain
4.N2 Increase the number of evidence-based behavioral support services provided to WISEWOMAN participants (Output)	FY 2015: 40,087 Target: 30,060[3] (Target Exceeded)	30,060	30,060	Maintain
4.O Increase the total number of evidence-based tools disseminated to promote sodium and hypertension reduction and awareness (Output)	FY 2017: 198 Target: 157 (Target Exceeded)	167	177	+10

[1]Targets and results are set and reported biennially.

[2]Targets may include budget authority and/or PPHF funding.

[3]Target was set level with 2014 data point until at least one additional data point was collected to establish a trend, and may be reset in FY20 now that two data points are available.

Performance Trends: Hypertension affects one in three adults and is a modifiable risk factor for heart disease, stroke, and other chronic diseases. Hypertension contributes to one out of every seven deaths in the U.S.,

including just over a quarter of all cardiovascular disease-related deaths. For 2015-2016, the rate of blood pressure control among adults with hypertension reached 42.8%, which is below the target of 56% (Measure 4.11.5). The data suggest that younger adults (under age 60) have significantly lower rates of control than to older Americans. Potential reasons for this include continued increases in obesity and diabetes amount persons who are obese and/or have diabetes. In order to address this disturbing trend in blood pressure control, public health will have to direct prevention efforts to younger adults, as well as address those with obesity and/or diabetes.

CDC provides all 50 states and the District of Columbia with funding, expertise, and technical assistance to implement programs to improve cardiovascular health and improve blood pressure control statewide through proven, evidence-based strategies. These approaches include encouraging multidisciplinary team-based approaches to care, increasing the use of electronic health records and health IT to improve diagnosis of high blood pressure and patient follow-up, and by promoting patient self-management of high blood pressure. Grantee states have seen success in these approaches. For example, New York was able to improve its blood pressure control rates from 63.5% to 68% in just 3 years, beating its 5-year target of 67.8%.

CDC is also pursuing promising interventions to build on these foundational efforts. CDC funded and supported the Association of State and Territorial Health Officials' State Learning Collaborative, which has piloted innovative rapid-cycle improvement projects to continually improve the way state public health can help prevent, detect, and treat hypertension and chronic diseases. Through a new systems change model the collaborative helped states reach more people living with diagnosed and undiagnosed hypertension; spread blood pressure control activities to other communities; and leveraged results to ensure sustainability and secure additional funding. The Collaborative identified 27,500 individuals at risk for hypertension, supported 15,000 individuals in controlling their blood pressure, and developed and implemented more than 100 data exchange, referral, and follow up protocols.

A 2016 report showed that 90% of persons aged 2 or older exceeded the 2015—2020 Dietary Guidelines for Americans recommendation for sodium intake. High intake of dietary sodium is associated with elevated blood pressure, a key risk factor of heart disease and stroke. CDC prioritizes sodium reduction through voluntary collaborations with private and public food service partners to increase the availability of lower sodium menu options, thereby providing individual consumers with healthier food choices. In FY 2013-2014, average sodium consumption among people 2 years and older improved to 3,409 mg/day, a slight reduction from FY 2011-2012 (3,478 mg/day), but did not meet the FY 2014 target (Measure 4.11.6). However, CDC grantees have had notable successes in increasing access to lower sodium options. For example, in California, San Diego County reduced sodium in the meals served at senior meal sites, county detention facilities, a worksite cafeteria, and a psychiatric hospital. The detention facilities and a senior meal site increased the proportion of lower-sodium lunch entrees from 61% to 75% and 47% to 71%, respectively. The psychiatric hospital reduced the average sodium content of its meals by 16%, exceeding the 10% reduction goal. These efforts alone gave more than 11,000 people access to lower sodium choices of foods.

CDC will continue funding 8 sites to support sodium reduction strategies. These efforts include increasing the availability of lower sodium foods by developing food service guidelines and nutrition standards, implementing procurement practices, supporting meal and/or menu modifications, and encouraging the selection of lower sodium choices. Award recipients work with entities that provide food service and collaborate with food industry partners to increase the availability of lower sodium options. CDC will also continue to advance sodium reduction strategies through webinars, training videos, publications, collaboration with other federal partners on research and communication, and by leveraging other CDC programs.

In FY 2013, WISEWOMAN launched a new five-year cooperative agreement, which places more focus on providing women identified as being at high risk for cardiovascular disease (CVD) with appropriate healthy

behavior support services (HBSS), such as health coaching, lifestyle programs, or tobacco cessation resources, to reduce or control their CVD risk factors. Results for FY 2015 indicate that grantees were able to provide 40,087 evidence-based healthy behavior support services to WISEWOMAN participants (Measure 4.N2). The data also show that 61% of at-risk women (program participants) received at least one support service during 2015 (Measure 4.N1). CDC exceeded targets for both measures and improved upon the FY 2014 baseline. Programs have been working to implement more healthy behavior support services that are culturally tailored, given that approximately 43% of WISEWOMAN participants speak Spanish as their primary language. CDC will be launching a new four-year WISEWOMAN cooperative agreement in FY 2018 which will also contain an innovation component to increase enrollment in the WISEWOMAN program.

In FY 2017, CDC disseminated 198 evidence-based tools to promote hypertension and sodium reduction, continuing a trend of disseminating more tools annually since 2009 (Measure 4.O). Examples include:

- The new Health Systems Scorecard, a voluntary quality improvement tool to assess evidence-based chronic disease care management policies and practices.
- A Sodium Reduction in Communities Program Outcome Evaluation Toolkit, which provides guidance and tools for anyone evaluating sodium reduction activities.
- A guide to creating linkages between community pharmacists and physicians that benefit community collaborators and the patients they serve.
- A policy evidence assessment of 21 types of workplace health promotion interventions addressed in state laws.
- An interactive tool that helps health systems better understand hypertension prevalence among their patient populations.
- A video that guides health care providers through four steps to finding patients with undiagnosed hypertension.
- A collection of syndicated Million Hearts® hypertension quality improvement tools that can easily be embedded on an external website and are automatically updated when new content is released.

Diabetes

Performance Measures for Long Term Objective: Improve prevention, detection, and management of diabetes

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.11.12 Reduce the age-adjusted incidence of diagnosed diabetes among U.S. adults 20 years and older (Outcome)	FY 2015: 6.5 Target: 7.2 (Target Exceeded)	7.2	7.2	Maintain

Performance Trends: CDC estimates show that 86 million American adults, or 1 in 3 persons over age 20, have prediabetes, and 9 out of 10 people with prediabetes do not know they have it. Without a structured intervention, many of these individuals will go on to develop type 2 diabetes. CDC established the National Diabetes Prevention Program (National DPP) to address the growing epidemic of type 2 diabetes. The National DPP lifestyle change program is led by trained coaches who facilitate participants' strategies for eating a healthy diet, increasing physical activity, and developing coping skills. The Diabetes Prevention Program clinical trial showed that participants who engage in these lifestyle changes can lose 5 to 7% of their body weight and reduce development of type 2 diabetes by as much as 58% (71% for those 60 years of age and older). CDC's Diabetes Prevention Recognition Program serves as the quality assurance arm of the National DPP, awarding CDC

recognition to program delivery organizations that are able to meet national quality standards and achieve outcomes proven to prevent or delay the onset of type 2 diabetes. The CDC recognition program provides the only national centralized collection of performance data for the National DPP. Through implementation of the National DPP, CDC aims to continue the reduction of the age-adjusted incidence of diagnosed type 2 diabetes among U.S. adults 20 years and older (Measure 4.11.12). Although the national rate of diabetes incidence (6.4 cases per 1,000) has now moved below the target (7.2 cases per 1,000), we chose not to alter the target at present, in order to be consistent with Healthy People 2020 objectives. The continued growth of the diabetes burden in terms of absolute prevalence, lifetime risk, years spent with diabetes, and the incidence rate remaining considerably higher than it was in the 1990s, are all contributing factors indicating a need for continued largescale prevention efforts, for example the National DPP.

Since its inception in February 2012, nearly 150,000 people at high risk for developing type 2 diabetes have participated in CDC-recognized lifestyle change programs to prevent or delay type 2 diabetes across the U.S. Participants have lost an average of 4.7% of their body weight. As of November 2017, there are approximately 1,500 CDC-recognized organizations. CDC will propose a new measure in the FY 2020 budget cycle that will reflect annual progress in the number of organizations (cumulatively) delivering the National DPP lifestyle change program whose participants meet the average 5% weight loss goal at 12 months.

CDC supports state health departments and other stakeholder organizations in expanding access to the National DPP for populations at greatest risk for type 2 diabetes. Achieving insurance coverage is a critical step for increasing access to this highly effective program. Partners, in collaboration with CDC, have secured health insurance coverage for the National DPP for over 3 million public employees and dependents in 11 states. In addition, more than 240,000 Medicaid beneficiaries have access to the National DPP lifestyle change program in two states—Minnesota and Montana—and California and New Jersey will enact Medicaid coverage for the program in 2018, adding more than 14,800,000 beneficiaries. About 65 commercial insurance companies currently provide some form of coverage for the National DPP, and many employers across the U.S. offer the program as a covered health or wellness benefit for their employees with prediabetes.

In March 2016, the Centers for Medicare and Medicaid Services (CMS) certified the expansion of the National DPP into the Medicare program. This is the first preventive service model from the CMS Innovation Center to become eligible for expansion—a landmark for public health. CDC collaborated with the CMS Innovation Center on the model test, providing subject matter expertise, information from applied research studies conducted by CDC, and data from the CDC Diabetes Prevention Recognition Program to inform actuarial certification of the model. Medicare Diabetes Prevention Program services will become available in April, 2018. Approximately 23 million American adults with prediabetes are 65 years or older and could directly benefit.

CDC also strives to prevent diabetes complications through diabetes self-management education (DSME) that results in improved A1c, blood pressure, cholesterol, and smoking cessation (ABCS). DSME reduces healthcare costs by decreasing hospitalizations, hospital re-admissions, and emergency room visits among people with diabetes. CDC supports state health departments through a nationwide cooperative agreement to improve access to DSME among people with diabetes, with an emphasis on DSME programs that meet national quality standards. In 2016, approximately 4,155 DSME programs were offered across the U.S., and more than 1 million people with diabetes participated in recognized or accredited programs that meet national quality standards. Additionally, more than 2.5 million Medicaid beneficiaries have DSME as a covered benefit. Despite these successes, CDC is proposing to retire Measure 4.11.3a in FY 2019 because there have been challenges analyzing the data for smoking cessation (serum cotinine) from the National Health and Nutrition Examination Survey, which has led to an inability to provide a complete and updated analysis for this measure.

Cancer Prevention and Control

Performance Measures for Long Term Objective: Improve health outcomes related to cancer

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.9.1 Decrease the incidence rate of late-stage breast cancer diagnosis in women ages 50 to 74 (per 100,000) (Intermediate Outcome)	FY 2014: 100.7 Target: 100.5 (Target Not Met)	98.5	98.5	Maintain
4.9.2 Increase the percent of adults age 50 to 75 receiving colorectal cancer screenings[1] (Intermediate Outcome)	FY 2016: 67.3% Target: 70% (Target Not Met but Improved)	68.5%	N/A	N/A
4.9.4 Increase the percentage of CDC-funded state cancer registries that electronically receive physician cancer reports from Electronic Health Record (EHR)/Electronic Medical Record (EMR) systems (Output)	FY 2017: 70% Target: 60% (Target Exceeded)	75%	85%	+10
4.Q Number of breast or cervical cancers and pre-malignant lesions detected among women served (Short-term)	FY 2016: 9,558 Target: 9,200 (Target Exceeded)[2]	9,700	9,900	+200
4.R Number of women served through the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) (Short-term)	FY 2016: 331,998 Target: 370, 920 (Target Not Met)	340,000	345,000	+5,000

[1]Targets and results are set and reported biennially.

[2]To be consistent with clinical guidelines and definitions of precancerous lesions, number of CIN1 pap results included to measure. Targets have been adjusted to reflect larger numbers.

Performance Trends: Cancer is the second leading cause of death in the United States, resulting in over 592,000 deaths annually – over 1,600 deaths each day. Cancer is responsible for more potential years of life lost than all other causes of death combined. The total number of new cancer cases is estimated to increase to 1.9 million in 2020 and because cancer patients overall are living longer, the number of cancer survivors is expected to increase to 18 million and cancer costs are estimated to reach $160 billion by 2020.

The number of new cancers can be reduced and many cancer deaths can be prevented. Scientific research shows that policy and environmental changes can reduce the risk for cancer and improve survival after a cancer diagnosis. Effective screening methods can find breast, cervical, and colorectal early so that treatment can be more successful. Despite the evidence, screening rates for all three types of cancer remain below Healthy People 2020 screening targets. CDC is actively focused on increasing screening rates for Americans by emphasizing evidenced-based interventions in health system clinics, expanding patient navigation, and partnering with community organizations.

Breast and Cervical Cancer: Women ages 50 and older are at highest risk for breast cancer and benefit the most from screening. In FY 2012, the incidence rate of late-stage diagnosis among women ages 50–74 (Measure 4.9.1) decreased slightly to a five-year low of 100.5 per 100,000. The incidence rate increased slightly to 100.7 per 100,000 in FY 2013 and remained constant at 100.5 per 100,000 in FY2014. Recent modeling studies show that compared to those not screened, biennial mammography screening reducing breast cancer deaths by 25% among women ages 50-74.

In July 2017, CDC awarded a new five-year cooperative agreement for the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) to fund 50 states, the District of Columbia, 6 U.S. territories, and 13 American Indian/Alaska Native tribes or tribal groups to increase breast and cervical cancer screening rates. The new cooperative agreement requires grantees to increase cancer screening rates by implementing evidence-based strategies and population-level activities within health systems and providing direct screening services.

Two new measures for the NBCCEDP are being reported for the first time this year. These new measures better reflect the impact and reach of the NBCCEDP with the requirements of the new Notice of Funding Opportunity (NOFO). In FY 2016, NBCCEDP reported 9,558 cancers and pre-malignant lesions detected (Measure 4.Q), substantially exceeding the target (9,558 vs. 9,200). However, the total number of women served by the NBCCEDP (Measure 4.R) was approximately 40,000 fewer than the target (331,998 vs 370,920). In FY 2015, NBCCEDP grantees were still operating under a model that placed primary emphasis and resources on providing direct screening services. CDC anticipates the program will increase the number of women served and meet future targets by continuing to provide direct screening services where needed but also by putting greater emphasis on implementing population-level activities with health systems required in the recently awarded cooperative agreement.

Colorectal Cancer: Colorectal cancer (CRC) is the second most commonly diagnosed cancer and the second leading cause of cancer deaths among cancers affecting both men and women in the U.S. CRC screening can detect cancer early, when treatment is more effective, and a colonoscopy can prevent cancer by removing precancerous polyps before they turn into cancer. In FY 2016, only 67.3% of adults aged 50-75 were up to date on CRC screening for CRC (Measure 4.9.2), about a 1% improvement since 2014, but not meeting the 70% target.

CDC funds 29 grantees to increase colorectal screening among underserved populations aged 50-75. Grantees work primarily with community health centers to increase the number of people screened within partner health systems through evidence-based, targeted strategies that include patient and provider reminders, and provider assessment and feedback as recommended by the Task Force on Community Preventive Services. In FY 2016, Colorectal Cancer Control Program (CRCCP) grantees partnered with over 400 clinics that serve over 700,000 patients ages 50-75. On average, colorectal screening rates in the partner clinics increased from 33% at baseline to 39%. In contrast, national screening rates for the U.S. only increased approximately 1% over two years from 2014 (66.3%) to 2016 (67.3%). CDC is proposing a change to the 2018 target from 67% to 68.5% since the current result exceeds the proposed target.

Additionally, as part of our broader comprehensive cancer control program, CDC and national partners including the National Cancer Institute (NCI), National Colorectal Cancer Roundtable, American Cancer Society (ACS), and

Health Resources Service Administration (HRSA), convened workshops with 11 state teams funded by to develop state-level action plans incorporating best practices from our CRCCP to increase CRC screening rates.

Cancer Registries: Cancer reporting from providers to State Cancer Registries is included in CMS Stage 2 meaningful use criteria. Implementation of meaningful use criteria is significantly increasing the number of reports received for each case by the central registry. In FY 2017, 32 registries (70% of all registries) electronically received physician cancer reports from electronic health records (EHRs), up from 25 registries (54%) in FY 2016, exceeding the target for the third straight year (Measure 4.9.4). CDC is proposing a change to the 2018 target from 65% to 75% since the current result (70%) exceeds the proposed target.

In July 2017, CDC awarded a new five-year NOFO supporting the National Program of Cancer Registries (NPCR) in 46 states, the District of Columbia, Puerto Rico, US Pacific Island jurisdictions, and the US Virgin Islands. CDC collects data on the occurrence of cancer, its type, extent, and location, and the initial treatment. Together, NPCR and National Cancer Institute's Surveillance, Epidemiology, and End Results Program collect data for 100% of the U.S. population.

Oral Health

Performance Measures for Long Term Objective: Prevent oral health diseases and promote effective interventions that support optimal oral health

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.7.1 Increase the proportion of the people served by community water systems who receive optimally fluoridated water[1] (Intermediate Outcome)	FY 2014: 74.4% Target: 76.5% (Target Not Met)	76.5%	N/A	N/A

[1]Targets and results are set and reported biennially.

Performance Trends: For more than 70 years, community water fluoridation has been a safe and healthy way to effectively prevent tooth decay, and has been recognized by CDC as one of 10 great public health achievements of the 20th century. CDC works with national partners, states, communities, and water operators to support the U.S. population having access to optimally fluoridated water to prevent tooth decay. CDC is working toward the Healthy People 2020 objective of 79.6% of the population on public water systems who receive optimally fluoridated water. Fluoridation of public water systems increased from 62.1% in 1992 to 74.6% in FY 2012, slightly dropping to 74.4% in 2014 (Measure 4.7.1).

The decision to implement or continue community water fluoridation is made at the state or local level. CDC supports the decision-making process by sharing evidence-based research about the safety, effectiveness, and cost-effectiveness of community water fluoridation. Beginning in FY 2016, CDC made funding available to water systems through a partner organization for replacement of aging water fluoridation equipment, or to install new water fluoridation systems. In early 2018, CDC will release a modular online training course on community water fluoridation that will be available to water system engineers, public health professionals, state oral health programs, and educational institutions. In FY 2018-2019, CDC and a partner organization will develop a fluoridation communications toolkit for public health professionals, water system operators, and civic leaders. This product will provide communication strategies, fact sheets, infographics, and talking points to assist state and local stakeholders in communicating the benefits of community water fluoridation as well as providing answers to common questions about their fluoridation programs.

Safe Motherhood and Infant Health

Performance Measures for Long Term Objective: To improve the health of women and infants through public health surveillance, research, capacity building and science based practices

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.8.5 Reduce birth rates among adolescent females aged 15 to 19 years (per 1,000 births) (Contextual Indicator) (Output)	FY 2015: 22.3 Target: 25.2 (Target Exceeded)	18.4	17.5	-.9
4.8.7 Decrease the infant mortality rate (infant deaths per 1,000 live births occurred within the first year of life)	FY 2015: 5.9 (Historical Actual)	5.72	5.66	-0.06

Performance Trends: CDC strengthens the evidence base for effective interventions that improve both maternal and infant health.

Birth Rate Among Adolescent Females: The birth rate for teenagers aged 15-19 has decreased over 50% in the past decade. This rate dropped from 24.2 per 1,000 in 2014 to 22.3 per 1,000 in 2015, reaching yet another record low for the U.S. and exceeding the FY 2015 target (Measure 4.8.5).

Infant Mortality Rate: The infant mortality rate is the number of deaths per 1,000 live births that occur before the infant's first birthday. In 2015, the infant mortality rate in the U.S. was 5.9 deaths for every 1,000 births (Measure 4.8.7). In 2015, there were approximately 4,000 deaths due to preterm birth and 3,700 sudden unexpected infant deaths, which together make up about 30% of all infant deaths. CDC works to prevent these deaths through a range of activities. CDC supports state-based Perinatal Quality Collaboratives (PQCs), which are networks of teams working to improve health outcomes for mothers and babies. PQC members identify health care processes that need to be improved and use the best available methods to make changes as quickly as possible. CDC also funds the Sudden Unexpected Infant Death (SUID) Case Registry in 16 states and 2 jurisdictions, covering 30% of all SUID cases in the United States. SUID is the death of an infant less than 1 year of age that occurs suddenly and unexpectedly and whose cause of death is not immediately obvious before investigation. SUIDs include deaths from SIDS, accidental suffocation and strangulation in bed, and deaths with unknown cause. Participating states and jurisdictions use data about SUID trends and circumstances to develop strategies to improve death investigations and reduce future deaths.

Safe Sleep: The availability of data through the Pregnancy Risk Assessment Monitoring System (PRAMS) has allowed CDC and states to monitor changes in maternal and child health status and indicators, identify groups of women and infants at high risk for health problems, and measure progress toward goals in improving the health of mothers and infants. CDC realigned the core set of questions used in PRAMS to include measures of safe sleep practices in order to evaluate community-based infant death prevention recommendations for reducing sudden unexpected infant deaths. All participating sites now collect this data, thus achieving CDC's overall target for Measure 4.8.4. CDC will retire this measure in FY 2019.

Arthritis

Performance Measures for Long Term Objective: Reduce pain and disability and improve quality of life among people affected by arthritis

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.11.1 Reduce the age-adjusted percentage of adults (age 18+) diagnosed with arthritis that are physically inactive in states funded by the CDC Arthritis Program (Outcome)	FY 2016: 28.8%[1] Target: 27.8% (Target Not Met But Improved)	29.5%	29.4%	-.1

[1]The support that the arthritis program provides is too small to show a significant effect on a national data point gathered through BRFSS alone.

Performance Trends: Moderate physical activity is a proven and safe self-management strategy for people with arthritis, however, adults with arthritis have significantly higher rates of physical inactivity than adults without arthritis. FY 2016 data for physical activity levels show about 28.8% of adults diagnosed with arthritis in states funded by CDC were physically inactive (Measure 4.11.1), a slight increase from FY 2016 (31.9%), although the target was not met. Physical activity levels among adults with arthritis have proven challenging to change at a rapid pace within the confines of CDC's Arthritis Program activities. It is difficult to show a statewide impact among the entire adult population with arthritis. The Program will begin a new cooperative agreement in FY 2018. This will give the program an opportunity to begin work with a newly funded set of states on new activities.

Recent projections indicate that arthritis prevalence and arthritis-associated limitations are increasing and confirm that arthritis remains a top cause of morbidity, work limitations, and compromised quality of life. Arthritis affects more than 54 million adults, half of whom are working aged (< 65), and is projected to affect 78 million adults by 2040. There is good evidence that physical activity can reduce joint pain, improve function and halt or delay physical disability among adults with arthritis, but physical activity levels are lower for adults with arthritis than adults without arthritis. There is evidence that shows adults with arthritis are more likely to engage in physical activity and self-management education programs when recommended by a health care provider. This strategy and an emphasis on provider recommendations will be reflected in future activities of the arthritis program.

Behavioral Risk Factor Surveillance System (BRFSS)

Performance Measures for Long Term Objective: Improve validity, coverage, and dissemination of BRFSS

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
4.P Increase the average percentage of completed cell phone interviews to maintain population coverage in the Behavioral Risk Factor Surveillance System (BRFSS) (Output)	FY 2016: 48% Target: 35% (Target Exceeded)	45%	50%	+5

Performance Trends: CDC established the Behavioral Risk Factor Surveillance System (BRFSS) as a landline telephone-based health survey system conducted by states and territories to monitor population risk factors for chronic disease and other leading causes of death and disability. CDC moved to a dual, but separate, landline and cellular telephone sampling frame in 2011 and has demonstrated measurable improvements in reaching cell phone respondents by increasing the average percentage of BRFSS cell phone interviews from 4.5% in FY 2009 to 48% in FY 2016, exceeding the target and an increase over FY 2015 (Measure 4.P).

BIRTH DEFECTS AND DEVELOPMENTAL DISABILITIES

Child Health and Development

CDC Contextual Indicators for Long Term Objective: Prevent birth defects and developmental disabilities

Contextual Indicators	Most Recent Result	FY 2020 Target
5.1.5a: Increase the proportion of children with autism spectrum disorders (ASDs) having a first evaluation by 36 months of age (Outcome)	FY 2012: 42.8%[1]	47.0%
5.1.5b: Increase the proportion of children with low SES with autism spectrum disorders (ASDs) who receive a first evaluation by 36 months of age (Outcome)	FY 2010: 37.3%	41.0%
5.1.5c: Increase the proportion of children of minority race/ethnicity (non-white) with autism spectrum disorders (ASDs) having a first evaluation by 36 months of age (Outcome)	FY 2012: 39.8%	43.1%
5.1.5d: Increase the proportion of children of low SES and minority race/ethnicity with autism spectrum disorders (ASDs) who receive a first evaluation by 36 months of age (Outcome)	FY 2010: 40.0%	43.1%

[1]Fiscal year (FY) represents the year the study began, typically referred to as the data surveillance year (SY). Targets are set and reported every four years. FY 2012 results for 5.1.5b and 5.1.5d will be available January 31, 2018.

Performance Measures for Long-Term Objective: Prevent birth defects and developmental disabilities

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
5.1.8a Increase the percentage of primary care providers who screen women of reproductive age for risky alcohol use (Outcome)	FY 2017: 42.2% Target: 46% (Target Not Met But Improved)	45.2%	46.6%	+1.4
5.1.8b Increase the percentage of primary care providers who provide appropriate, evidence-based interventions to reduce alcohol-exposed pregnancy for those at risk (Outcome)	FY 2017: 36.2% Target: 42% (Target Not Met)	40%	41.3%	+1.3
5.1.10 Increase the proportion of Hispanic women of reproductive age who have an optimal blood folate concentration for	FY 2011: 75.5% (Baseline)	N/A	76.75	N/A

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
neural tube defect prevention[1] (Outcome)				
5.1.11a Reduce use of opioid-containing medications among pregnant women (Outcome)	FY 2014: 10.2% Target: 9.5% (Target Not Met but Improved)	7.8%	7.4%	-0.4
5.1.11b Reduce use of opioid-containing medications among women of reproductive age (Outcome)	FY 2014: 24.2% Target: 22.6% (Target Not Met but Improved)	18.4%	17.5%	-0.9
5.E Increase the proportion of population-based birth defects surveillance programs that meet essential national data quality standards (Output)	FY 2017: 65.9% Target: 62% (Target Exceeded)	63%	63%	Maintain

[1]Targets and results are set and reported biennially.

Performance Trends: In the U.S., birth defects affect 3% of infants and account for more than 20% of infant deaths. A primary way CDC prevents birth defects is by identifying and reducing risk factors (such as exposure to alcohol or opioids in pregnancy) and by identifying and increasing protective factors (such as sufficient levels of folate in the blood). CDC works to increase the percentage of primary care providers who (a) screen women of reproductive age for risky alcohol use and (b) provide appropriate, evidence-based interventions to reduce alcohol-exposed pregnancy for those at risk (Measures 5.1.8a-b). Though the FY 2017 targets for all combined provider types were not met, the overall percentage of alcohol screening and brief intervention remained stable compared to FY 2016. Both percentages reflect increases from FY 2012 baseline estimates. Additionally, variations exist within specific provider types in regards to the percentage of alcohol screening and brief intervention from 2012 to 2017. Ob-gyns reported the highest increases in alcohol screening and brief intervention when compared with other providers. Both ob-gyns and nurse practitioners exceeded the target for screening in 2017 (57.9% and 49.1%, respectively), however they did not meet the target for brief intervention. Efforts to improve provider practices of alcohol screening and brief intervention continue to be a key program focus area.

To prevent neural tube defects (NTDs), CDC works to help women of reproductive age attain optimal concentrations of folate, a B vitamin, in their blood. Hispanic mothers have higher rates of NTD-affected births. CDC monitors red blood cell folate concentrations among women of reproductive age, including Hispanic women, to inform interventions in these populations. In FY 2011, 75.75% of Hispanic women of reproductive age (12-49 years) were found to have an optimal blood folate concentration for neural tube defect prevention (Measure 5.1.10). Results for FYs 2013/2014 will be available in early 2018 and results for 2015 will be available in December of 2018. In April 2016, the Food and Drug Administration (FDA) approved folic acid fortification of corn masa flour, a major food staple for many Hispanic women. Corn masa flour products with folic acid reached the first store shelves at the end of the summer 2016, and CDC should be able to see the effects of this fortification in data that will be reported in 2020.

CDC aims to reduce unnecessary use of opioid-containing medications among pregnant women and women of reproductive age as part of its Treating for Two initiative. The most recent results show a decrease in the percent of women using an opioid-containing medication during pregnancy from 11.1% at baseline to 10.2% in 2014 (Measure 5.1.11a). Data from 2014 also show a decrease in the percent of women of reproductive age using an opioid-containing medication from 26.4% to 24.2% (Measure 5.1.11b). Through the Treating for Two initiative, CDC will continue working to expand and accelerate research to fill knowledge gaps about the risks associated with opioid use during pregnancy, and will facilitate the development of reliable guidance and deliver up-to-date information to support decision making among prescribers, pharmacists, and consumers.

CDC works to increase the proportion of population-based birth defects surveillance programs that meet essential national data quality standards. CDC provides technical assistance to each program in their efforts to improve data quality. The percentage of birth defects surveillance programs that met national data quality standards increased from 50% in FY 2014 to 61.9% in FY 2016, an increase over FY 2015 results and surpassing the FY 2016 target of 54% (Measure 5.E). The FY 2017 target was adjusted upward in response and FY 2017 results surpassed this goal (65.9%).

CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network monitors the prevalence of Autism Spectrum Disorder (ASD) and other developmental disabilities in 12 communities across the United States. The most recent ADDM data estimated that 1 in 68 children living in ADDM Network communities have ASD. In addition to providing a prevalence estimate, ADDM data are used to track the age at which children with ASD receive developmental evaluations and ASD diagnoses. Results from the 2012 study year show a slight decrease (0.5 percentage points) in the proportion of children with ASD who receive a first evaluation by 36 months of age (CI 5.1.5a). Data for subgroups show the proportion of children with ASD who receive a first evaluation by 36 months of age slightly increased (0.3 percentage points) for children of minority race/ethnicity (CI 5.1.5c). Sub-analyses of data looking at age of evaluation for children of low socioeconomic status (CI 5.1.5b) and minority race/ethnicity with low socioeconomic status (CI 5.1.5d) from the 2012 study year are underway. In an effort to increase the proportion of children with ASD who receive a first evaluation by 36 months of age, CDC has expanded the reach of its Learn the Signs. Act Early. Program, which encourages parents and providers to monitor developmental milestones and act early if there are signs of developmental delays.

Health and Development for People with Disabilities

Performance Measures for Long-Term Objective: Improve the health and quality of life of Americans with disabilities

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
5.2.5 Increase the percentage of jurisdictions that collect, report, and use individually identifiable data in order to reduce the number of infants not passing hearing screening that are lost to follow-up (Outcome)	FY 2015: 64% Target: 66% (Target Not Met But Improved)	78%	80%	+2
5.2.6 Decrease the incidence of skin breakdown in patients with spina bifida (SB) who attend SB clinics[1] (Outcome)	FY 2016: 8.8% Target: 8% (Target Not Met)	7%	6.8%	-0.2
5.2.7 Increase the percentage of US children 2-5 years of age with a diagnosis of ADHD who receive behavioral therapy (psychological services) for treatment (Outcome)	FY 2016: 59% Target: 43% (Target Exceeded)	47%	50%	+3
5.F Increase percentage of funded Disability and Health state programs that use state Medicaid administrative data to inform the development of public health programs for people living with intellectual /developmental disabilities (I/DD) (Output)	FY 2017: 37% Target: 22% (Target Exceeded)	37%	37%	Maintain

[1]Refined definition for skin breakdown to improve consistency in data. Targets adjusted to reflect revised baseline.

Performance Trends: CDC is helping children live to the fullest through cost-effective early identification and intervention programs that improve outcomes for newborns with hearing loss. CDC's support for state and territory-based Early Hearing Detection and Intervention (EHDI) Information Systems has made significant progress in identifying newborns with hearing loss early and enrolling them in intervention programs. While the FY 2015 target was not met, results improved over FY 2014 at 64%. This may be caused by plateauing progress where larger advancements were made earlier in the goal-setting process, 2014-2015, and has since slowed.

Some of the slowing progress may also be due to competing demands in jurisdictional health departments where there could be challenges such as delays in data analysis and/or specialists available to follow up at the 3-month benchmark. The new EHDI program funding cycle, which emphasizes the use of individual level data to ensure D/HH infants are identified early and not lost to follow-up, was awarded in the summer 2017 – from this, CDC is currently looking at possible development of an improved measure on this item to better reflect progress.

ADHD is the most common neurobehavioral disorder of childhood, diagnosed in 11% of children aged 4-17 years. New data indicate that children as young as 2-3 years are being diagnosed with ADHD and receiving medication for treatment. The American Academy of Pediatrics recommends behavioral therapy as the first-line treatment for children aged 4-5 years with an ADHD diagnosis, but data suggest that only about half of these children are receiving psychological services (a classification that includes behavioral therapy). CDC is working to raise awareness of behavior therapy among parents and health professionals, develop evidence and tools to increase available behavior therapy options, and inform state and local decision-makers about best practices. In FY 2015, 41% of U.S. children aged 2-5 years with ADHD received behavioral therapy for treatment, a slight increase over the FY 2014 baseline. Further increases were seen in FY 2016, with nationally representative data showing that 59.5% of U.S. children aged 2-5 years with ADHD received behavioral therapy (Measure 5.2.7).

CDC is also improving the health of people living with disabilities. Skin breakdown, including pressure ulcers, is a major complication of spina bifida (SB) and up to 8% of people with SB die of pressure ulcer complications. Until October 2016, there was not a coordinated, intentional, and measured delivery of skin breakdown prevention information; previous estimates of the incidence of skin breakdown in patients who attend SB clinics were around 16%. CDC has recently addressed one of the material inadequacies previously reported in the data: the lack of clear definition of the skin breakdown variable, which caused inconsistency in measurement across sites. CDC began implementing the Skin Breakdown Prevention Bundle in summer 2016 in collaboration with 10 SB clinics that participate in the National Spina Bifida Patient Registry. These clinics receive quarterly reports that include the proportion of patients seen at the clinics who receive the bundle, as well as the incidences of skin breakdown. CDC's most recent data show an incidence of skin breakdown in patients with SB who attend SB clinics of 8.86% in 2016, which did not meet the target of 8% (Measure 5.2.6) but was a significant improvement from the previous result. Because patients are seen in spina bifida clinics every one to two years and they report occurrences of skin breakdown since the last clinic visit, the patients for whom skin breakdown was reported in 2017 had not necessarily received the current prevention information. As more time passes since the Skin Breakdown Prevention Bundle was implemented, we anticipate that rates are likely to improve.

CDC also improves the health of people living with intellectual/developmental disabilities (I/DD) by working to increase the application of Medicaid administrative data to help public health interventions better serve people in this population. Among other outcomes, these data can help CDC and states determine the leading causes of hospitalization and emergency department use among people with I/DD. This information represents an opportunity to improve care quality and reduce Medicaid expenditures, as well as improve health for people with disabilities. In FY 2017, 37% of CDC-funded Disability and Health State Programs used Medicaid administrative data to inform the development of public health programs for people living with I/DD, which represents nearly a seven-fold increase over the FY 2015 baseline (Measure 5.F). We anticipate this will remain level for some time. In FY 2018 all of the funded sites that use Medicaid administrative data will work together to identify one intervention they will all implement and evaluate in FY 2019.

Public Health Approach to Blood Disorders

Performance Measures for Long-Term Objective: Improve the health and quality of life for Americans with blood disorders

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
5.3.2 Decrease the prevalence of hemophilia treatment inhibitors among Public Health Surveillance Project for Bleeding Disorders patients (Outcome)	FY 2016: 5.5% 2016 Target: 4.3% (Target Not Met but Improved)	4.1%	4.0%	-0.1

Performance Trends: CDC protects people and prevents complications of blood disorders by reducing prevalence of inhibitors among hemophilia patients. People with hemophilia use treatment products called clotting factor concentrates ("factor"). These treatment products improve blood clotting, and they are used to stop or prevent a bleeding episode. When a person develops an inhibitor, the body stops accepting the factor treatment product as a normal part of blood. The body thinks the factor is a foreign substance and tries to destroy it with an inhibitor. The inhibitor keeps the treatment from working which makes it more difficult to stop a bleeding episode. A person who develops an inhibitor will require special treatment until his or her body stops making inhibitors.

Approximately 15-20% of people with hemophilia develop an inhibitor. Inhibitors can cause a patient's treatment costs to exceed $1,000,000 a year, increase hospitalizations, and compromise physical functioning. Discovering an inhibitor as soon as possible helps improve outcomes and reduce costs. Although hemophilia care providers widely accept that development of an inhibitor is a serious complication of treatment, routine screening for inhibitors is not current practice because of the high cost (often not covered by insurance) and the inability of most local laboratories to perform the screening test if the patient has recently been treated.

CDC collects data on health issues and medical complications for people living with blood disorders, incorporates screening for inhibitors and facilitates best practices that help prevent or eradicate them, and works to identify inhibitor risk factors. Performance data show that from FY 2015 to FY 2016 there was a reduction of nearly one percentage point in the number of people with hemophilia with an active inhibitor (Measure 5.3.2).

ENVIRONMENTAL HEALTH

Childhood Lead Poisoning Prevention

Contextual Indicator for Program: Childhood Lead Poisoning Prevention

Contextual Indicator	Most Recent Result	FY 2019 2022 Target[2]
6.2.5a: Reduce health disparities associated with blood lead levels in children aged 1-5 in the U.S. such that: a. The gap in blood lead levels between black children and children of other races is reduced (Contextual Indicator)[1]	FY 2011-2014: Result: 0.33 Target: 0.45 (Target Exceeded)	0. 45
6.2.5b: Reduce health disparities associated with blood lead levels in children aged 1-5 in the U.S. such that: b. The gap in blood lead levels between children living above the federal poverty level and those living below the poverty level is reduced (Contextual Indicator)[1]	FY 2011-2014: Result: 0.29 Target: 0.47 (Target Exceeded)	0. 47

[1]Targets are set and reported every four years.

[2]Preliminary targets. Final targets will be set when final FY 2015-2018 data is available.

Performance Measure for Program: Childhood Lead Poisoning Prevention

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target2	FY 2019 +/-FY 2018
6.2.3 Percent of children (with blood lead levels at or above 5 micrograms per deciliter) who are referred for case management[1] (Outcome)	FY 2015: 20% (Baseline)	30%	30%	Maintain

[1]CDC anticipates having the data collected and analyzed in 2018.

Performance Trends: CDC measures the reduction in health disparities associated with blood lead levels in children, which are valuable indicators of the success of lead interventions nationwide (Measures 6.2.5a-b). Lead exposure can affect nearly every system in the body and is associated with numerous behavioral and learning problems (e.g., reduced IQ, attention deficit hyperactivity disorder, juvenile delinquency, and criminal behavior). Even low levels of lead in a child's blood can affect IQ, the ability to pay attention, and academic achievement. While overall child lead levels in the U.S. have fallen significantly in the last decade, reducing disparities is critical to decreasing the average blood lead levels among all young children. An estimated 12.3 million children ages 1-5 years have blood lead levels (BLLs) over the national average of 1 microgram per deciliter. Over half a million children under the age of 5 years have BLLs at or above the current reference level (5 micrograms per deciliter), which triggers state and local intervention, such as exposure mitigation and health monitoring. Based on 2011—2014 National Health and Nutrition Examination Survey (NHANES)[185] data, CDC exceeded the performance target for reducing the gap in blood lead levels between black children and children of other races. CDC continues its efforts to reduce the gap in blood lead levels between children living above the federal poverty level and those living below the poverty level. Addressing this disparity will be a major focus of the next funding announcement.

CDC provides national expertise on lead poisoning prevention and a national surveillance system to monitor blood lead levels and housing-related health hazards. The effects of elevated blood lead levels in children can be

[185] https://www.cdc.gov/nchs/nhanes/index.htm

mitigated through timely provision of educational, medical, and behavioral interventions and social services. CDC's strategy to address childhood lead poisoning prevention is to use data for targeted interventions, including referral of children with elevated BLLs for case management services. CDC referred 20% of children with elevated BLLs for case management in FY 2015 (Measure 6.2.3).

Environmental and Health Outcome Tracking Network

Performance Measures for Program: Environmental Public Health Tracking

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
6.C Number of public health actions undertaken (using Environmental Health Tracking data) that prevent or control potential adverse health effects from environmental exposures (Output)	FY 2017: 57 Target: 21 (Target Exceeded)	35	40	+5

Performance Trends: The Environmental and Health Outcome Tracking Network covers over 190 million people, which made up about 59% of the population in the U.S. in 2016. The Tracking Network also serves as a source of information on environmental hazards and exposures, population data, and health outcomes. Since FY 2013, CDC has consistently exceeded expectations for the number of data-driven actions to improve public health using the Tracking Network (Measure 6.C). From FY 2005 to FY 2017, state and local public health officials have used the Tracking Network to implement over 450 data-driven public health actions to save lives and prevent adverse health effects that are due to environmental exposures.

For example, in FY 2016 the Florida Department of Health became very interested in mapping demographic characteristics of communities with Zika cases to better target prevention and control efforts for mosquitoes. The Florida Tracking Program mapped specific demographic variables at the census tract level for all counties in Florida that had any Zika cases (including travel-associated cases), and made the geographical information systems (GIS) tool available online within 24 hours of the initial request. Currently, the mapping tool is available to all Florida county health departments. The tool has also allowed vector-borne disease experts to better pinpoint active transmission zones and screening rates for pregnant women in Miami-Dade County. The Tracking Network also serves as a source of information for health professionals, elected officials, researchers, parents, and the general public on environmental hazards and exposures, population data, and health outcomes. Because of CDC's concerted efforts to encourage Tracking awardees to report public health actions, CDC continues to meet this important measure of program success.

Environmental Health Laboratory

Performance Measures for Program: Environmental Health Laboratory

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
6.1.1 Number of environmental chemicals and nutritional indicators that are measured in surveys and studies of the U.S. population (Output)	FY 2017: 378 Target: 345 (Target Exceeded)	350	355	+5
6.1.3 Number of laboratories participating in DLS Quality Assurance and Standardization Programs to improve the quality of their laboratory measurements (Output)	FY 2017: 2,264 Target: 1,950 (Target Exceeded)	2,250	2,275	+25
6.1.4 Number of chronic disease biomarkers included in standardization programs that improve the quality of laboratory measurements (Output)	FY 2017: 15 Target: 15 (Target Met)	17	17	Maintain
6.A Number of environmental chemicals for which methods were developed or improved (Output)	FY 2017: 22 Target: 60 (Target Not Met)	25	30	+5
6.B Number of laboratory studies conducted to measure levels of environmental chemicals in exposed populations (Output)	FY 2017: 80 Target: 90 (Target Not Met)	82	85	+3
6.F Number of states assisted with screening newborns for preventable diseases (Output)	FY 2017: 50 Target: 50 (Target Met)	50	50	Maintain

Performance Trends: CDC's biomonitoring measurements track the level of environmental chemicals and nutrition indicators among the U.S. population and provide national reference information for scientists, physicians, and health officials. Since FY 2014, CDC has exceeded its target for the number of environmental chemicals and

nutritional indicators measured in surveys and studies of the U.S. population (Measure 6.1.1). In FY 2017, CDC measured 378 environmental chemicals and nutrition indicators, adding several new priority measurements to NHANES. In FY 2018 and FY 2019, CDC anticipates cycling out some measurements for chemicals detected infrequently in the U.S. population.

In FY 2012 through FY 2015, CDC exerted exceptional effort to develop or improve many laboratory methods that measure multiple environmental chemicals in a single test, greatly exceeding its targets (Measure 6.A). CDC developed or improved tests for 22 chemicals in FY 2017, but did not meet its target. CDC expects similar results in FY 2018 and FY 2019 because it completed method development plans for numerous chemicals in previous years.

In FY 2011 through FY 2016, CDC exceeded its target for collaborating in studies of environmental chemicals each year (Measure 6.B). These studies help identify populations with harmful exposures or higher than normal exposures. For example, CDC's measurements helped identify tasks associated with higher exposures among American workers in industries that manufacture and use bisphenol A (BPA). In FY 2017, CDC participated in 80 studies, fewer than expected because fewer collaborative opportunities aligned with CDC's mission and budgetary goals. CDC expects to collaborate on a similar number of studies in FYs 2018 and 2019.

CDC also provides voluntary quality assurance and standardization programs that help ensure the quality and comparability of important laboratory measurements for chronic diseases, newborn screening disorders, nutrition status, and environmental exposures. Laboratory participation in all programs increased over FY 2016, exceeding the FY 2017 target (Measure 6.1.3).

In addition, CDC met its target of providing standardization programs for 15 chronic disease biomarkers (Measure 6.1.4). CDC also ensures the quality of newborn screening for preventable diseases (e.g., severe combined immunodeficiency, amino acid disorders, endocrinopathies), and since FY 2013, has consistently met the target to provide quality assurance materials and technical expertise to all 50 states (Measure 6.F).

Asthma

Performance Measure for Program: Asthma

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
6.2.4 Increase the proportion of those with current asthma who report they have received self –management training for asthma in populations served by CDC funded state asthma control programs (Output)	FY 2014: 45% Target: 50% (Target Not Met But Improved)	50%	50%	Maintain

Performance Trends: CDC measures the proportion of individuals with current asthma who report receiving asthma self-management training from a doctor or other health care provider (Measure 6.2.4). While not meeting the target, there was a slight improvement over FY 2013 results with 45% of individuals reporting receiving asthma self-management training. CDC plans to replace this measure in the future to better reflect the program's progress.

In the U.S., nearly 25 million people have asthma, including seven million children. While there is no cure for asthma, self-management training can teach people to manage their disease with medical care and to prevent asthma attacks by avoiding triggers. Uncontrolled asthma results in significant costs to families and society when individuals go to the emergency department or are hospitalized for an asthma exacerbation.

CDC's National Asthma Control Program seeks to decrease the number of emergency department visits and hospitalizations by improving asthma control. Comprehensive asthma control strategies (based on the National Institutes of Health's Guidelines for the Diagnosis and Management of Asthma) are vital to helping people to stay out of the hospital, avoid the emergency department, and manage their asthma.

Environmental Health Activities

Performance Measures for Program: Environmental Health Activities

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
6.1.2 Number of completed studies to determine the harmful health effects from environmental hazards (Output)	FY 2017: 27 Target: 27 (Target Met)	30	30	Maintain
6.1.5 Number of states using National Environmental Assessment Reporting System (NEARS) to prevent foodborne illness outbreaks (Output)	FY 2016: 15 Target: 10 (Target Exceeded)	15	15	Maintain

Performance Trends: Since 2010, CDC has met or exceeded its target for completing studies to examine the human health effects of exposure to contaminated water and air pollutants, radiation, and hazards related to natural and other disasters (Measure 6.1.2). These studies help CDC develop, implement, and evaluate actions and strategies for preventing or reducing harmful exposures and their health consequences. As a result of response capacity needed for the increasing number of environmental health emergencies, CDC has prioritized studies related to natural disasters and severe health hazards. In FY 2017, CDC examined carbon monoxide exposures following widespread power outages and unusually low temperatures to identify risk factors and develop strategies to prevent future exposures. Results emphasized the importance of communicating the risks of exposure to carbon monoxide from improper generator use and supported the use of on-going monitoring of exposures during and after disasters to support prevention and response.

CDC's National Environmental Assessment Reporting System (NEARS) provides a standardized reporting tool that state, tribal, local, and territorial food safety programs use to identify environmental factors that they can routinely monitor to prevent or mitigate foodborne illness outbreaks associated with food service establishments (e.g., worker health policies and food handling practices). CDC exceeded its expectations in FY 2016 for the number of states using the NEARS system with two additional states participating than in FY 2015 (Measure 6.1.5). In FY 2017, CDC continued to encourage use of its free, interactive 8-10 hour e-Learning course for state and local food safety staff to improve environmental assessment and reporting related to foodborne illness outbreaks. Between FYs 2014 and 2017, CDC registered over 5,200 users from 50 states (plus the District of Columbia) and 92 countries for the food safety environmental assessment training course.

INJURY PREVENTION AND CONTROL

Intentional Injury Prevention

Long Term Objective: Achieve reductions in the burden of injuries, disability, or death from intentional injuries for people at all life stages

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
7.1.5 Increase the percent of Rape Prevention and Education (RPE) funded states that assess outcomes and impact of sexual violence prevention activities (Intermediate Outcome)	FY 2017: 12% Target: 12% (Target Met)	24%	35%	+11
7.2.5 Increase the percent of Core SVIPP funded states that assess outcomes and impact of injury and violence prevention strategies using surveillance data[1] (Intermediate Outcome)	FY 2016: 74% (Baseline)	95%	100%	+5

[1] The Core SVIPP program is cross-cutting and is supported by both the Intentional and Unintentional Injury Prevention budget lines.

Performance Trends: CDC is leading efforts to prevent violence before it begins and reaching out to audiences with new prevention strategies. CDC is assessing the impact of these strategies and approaches through its performance measure which tracks the percentage of Rape Prevention Education[186] (RPE) funded states that assess the outcomes and impact of sexual violence prevention activities.

CDC met its 2017 target of 12% of states assessing outcomes and impact of sexual violence prevention activities (Measure 7.1.5). CDC will continue to work with grantees to assess outcomes and impacts of the program activities, including increasing support and funding to states to support these efforts. CDC developed and implemented a tracking and monitoring system for RPE grantees allowing CDC to measure and track indicators of success such as increases in evaluation capacity (e.g. increased data availability to track program outcomes) and improved implementation of sexual violence prevention strategies based on the best available evidence.

CDC also supports both intentional and unintentional injury prevention activities through the Core State Violence and Injury Prevention Program[187] (Core SVIPP) (Measure 7.2.5). The program is discussed in further detail in the Unintentional Injury Prevention section.

[186] https://www.cdc.gov/violenceprevention/rpe/index.html
[187] https://www.cdc.gov/injury/stateprograms/about.html

Unintentional Injury Prevention

Long Term Objective: Achieve reductions in the burden of injuries, disability, or death from unintentional injuries for people at all life stages

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
7.2.4 Reduce motor vehicle deaths per 100 million vehicle miles traveled (Outcome)	FY 2016: 1.18 Target:0.97 (Target Not Met)	0.97	0.97	Maintain
7.2.5 Increase the percent of Core SVIPP funded states that assess outcomes and impact of injury and violence prevention strategies using surveillance data[1] (Intermediate Outcome)	FY 2016: 74% (Baseline)	95%	100%	+5
7.2.6 Reduce the age-adjusted annual rate of overdose deaths involving opioids per 100,000 population among states funded through Prescription Drug Overdose Prevention for States Program[2] (Outcome)	FY 2016: 15.0 per 100,000 residents (Baseline)	11.8	10.8	-1.0

[1]The Core SVIPP program is cross-cutting and is supported by both the Intentional and Unintentional Injury Prevention budget lines.

[2]FY 2015, CDC initiated a new program—Prevention for States (PfS), which currently funds a total of 29 state health departments. The baseline using 2015 was generated using the 29 PfS states as the denominator and the 2016 Actual and Target Measures for outlying years will all be calculated using the 29 PfS states, as opposed to the 5 states used in years prior.

Performance Trends: Unintentional injuries are the leading cause of death for individuals ages 1–44 in the United States. Additionally, over half of the total medical and work loss costs of injury deaths are attributable to unintentional injuries ($129.7 billion)[188]. CDC works in multiple areas across unintentional injury, and supports states through programs like Core State Violence and Injury Prevention Program (Core SVIPP) and the Prevention for States (PfS) Program.

Motor vehicle injury: Estimates show that 37,461 people died in motor vehicle crashes in 2016, a 5.6% increase from the number of motor vehicle crash deaths in 2015 when 35,485 died[189]. The fatality rate per 100 million vehicle miles traveled (VMT) increased to 1.18 in 2018, up from 1.15 in 2015 (Measure 7.2.4). Recent job growth and low fuel prices may be contributing to the increased driving (VMT increased by 2.2 percent from 2015 to 2016), which in turn may contribute to higher fatality rates.

[188] http://www.cdc.gov/media/dpk/2015/dpk-injury-costs.html

[189] https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812318

In order to address this increase, CDC will continue to promote proven prevention strategies that increase seat belt and child safety seat usage, reduce impaired driving, increase coverage of graduated driver licensing systems, and improve driver behaviors.

- CDC's State Specific Fact Sheets on Cost of Motor Vehicle Crash Deaths[190], Restraint Use[191], and Drunk Driving[192] provide a useful tool to highlight current data and proven strategies for reducing injury and saving lives. Between January 2016 and December 2017, these documents were downloaded more than 95,000 times from CDC's website.
- In response to higher than average rates of motor vehicle injuries on tribal lands, in November 2016, CDC released the Tribal Motor Vehicle Injury Prevention Program (TMVIPP) Best Practices Guide 2016[193]. The Guide outlines components needed for successful implementation of public health strategies to prevent motor vehicle injuries among American Indians/Alaska Natives.
- CDC released an MMWR examining seat belt use among rural and urban residents, finding rural that residents are at increased risk for death from motor vehicle crashes and are less likely to wear seat belts, highlighting the importance of seat belt use to save lives.
- CDC continues to work closely with its state and local partners, law enforcement agencies, and the more than 350 members of the Road to Zero Coalition to help address the human choices that are linked to 94 percent of serious crashes
- In January 2018, CDC will release an update to the Motor Vehicle Prioritizing Interventions and Cost Calculator for States (MV PICCS), a tool that helps state decision makers prioritize and select from a suite of 14 effective motor vehicle injury prevention interventions. The update will include a full redesign of the user interface and updated data.

Opioid overdose prevention: CDC has been tracking the rise of opioid overdose deaths and using the data to pivot to prevention activities to curb this alarming epidemic. Opioids were involved in over 33,000 deaths in 2015, and opioid overdoses have quadrupled since 1999. In response to this growing public health crisis, CDC has launched its Overdose Prevention in States (OPIS) effort as means to equip states with resources and expertise needed to reverse this epidemic. OPIS encompasses three programs (Prevention for States, Data-Driven Prevention Initiative, and Enhanced State Surveillance of Opioid-Involved Morbidity and Mortality) that support 45 states and Washington D.C. As a part of OPIS, CDC's Prescription Drug Overdose Prevention for States (PfS) program funds 29 state health departments to advance and evaluate comprehensive state-level interventions for preventing opioid-related overdose, misuse, and abuse. CDC is measuring progress in reducing overdose deaths involving all opioids among the 29 states funded specifically for PfS. In FY 2016, the baseline age-adjusted annual rate of opioid overdoses was 15.0 per 100,000 residents among states funded for the PfS program (Measure 7.2.6).

PfS awardees are showing successes, particularly around improving and maximizing Prescription Drug Monitoring Programs (PDMPs). Some states have seen success in integration projects that provide a solution for health care providers seeking an efficient means of incorporating opioid prescription checking into their existing workflow. For instance, Kentucky designed Drug Overdose County Profiles based on emergency department visit and inpatient hospitalization data. These profiles report drug-related visits by individual drugs and drug combinations, including diagnoses of drug dependence and nondependent abuse of drugs. The County Profiles were shared with identified high-burden counties and stakeholder response indicates the utility of this information in identifying and informing Kentucky's response.

[190] https://www.cdc.gov/motorvehiclesafety/statecosts/index.html
[191] https://www.cdc.gov/motorvehiclesafety/seatbelts/states.html
[192] https://www.cdc.gov/motorvehiclesafety/impaired_driving/index.html
[193] https://www.cdc.gov/motorvehiclesafety/pdf/native/tmvip_best-practices_guide_2016-a.pdf

In addition to CDC's state-based opioid prevention programs, the agency will continue to encourage uptake and use of the CDC Guideline for Prescribing Opioids for Chronic Pain (2016). Improving the way opioids are prescribed through clinical practice guidelines can ensure patients have access to safer, more effective chronic pain treatment while reducing the number of people who misuse, abuse, or overdose from these drugs. Since the Guideline's release in March 2016, CDC has made strides in educating the public and stakeholders on the Guideline, through fact sheets, checklists, and a mobile app, which has been downloaded over 9,000 times. CDC also partnered with the University of Washington and the Office of Public Health Preparedness and Response to create an interactive seven-part webinar series that trains providers on incorporating and applying the CDC Guideline for Prescribing Opioids for Chronic Pain in primary care settings. Over 1,500 continuing education credits were earned by providers who made use of this webinar series.

CDC's Core SVIPP program provides support to state health departments to disseminate, implement, and evaluate best practices and science-based strategies for injury and violence prevention programs. The Core SVIPP grantees use surveillance data to inform injury and violence prevention activities. In 2016, grantees engaged in their final year of program implementation with 100% of grantees reported using data to assess outcomes and impact of injury and violence prevention strategies, fulfilling CDC's target of 100% by 2015. A new Core SVIPP NOFO was awarded to 23 states in 2016. Of the 23 awardees, 16 (74%) were using data to assess outcomes and impact of injury and violence prevention strategies. Starting in FY 2017, CDC adjusted its target to 85% to reflect shifts in the group of awardees under this new NOFO (Measure 7.2.5).

PUBLIC HEALTH SCIENTIFIC SERVICES

Health Statistics

Performance Measures for Long Term Objective: Monitor trends in the nation's health through high-quality data systems and deliver timely data to the nation's health decision-makers

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
8.A.E.2: Reduce the number of months after data year for release of the final mortality and natality files (Outcome; Efficiency)	FY 2016: 10.5 Target: 10.5 (Target Met	11	11	Maintain
8.A.1.1a: Achieve and sustain the percentage of NCHS website users that are satisfied with data quality and relevance (Outcome)	FY 2017: 82% Target: 77.5% (Target Exceeded)	77.5%	77.5%	Maintain
8.A.1.1b: Sustain the percentage of Federal Power Users (key federal officials involved in health and health care policy or programs) that indicate that data quality is good or excellent (Outcome)	FY 2017: 100% Good or Excellent Target: 100% Good or Excellent (Target Met)	100% Good or Excellent	100% Good or Excellent	Maintain
8.A.1.3: Increase the number of web visits as a proxy for use of NCHS data (Output)	FY 2017: 11.7 Million Target: 13 Million (Target Not Met)	13 Million	13 Million	Maintain
8.F: Number of communities visited by mobile examination centers from the National Health and Nutrition Examination Survey (Output)	FY 2017: 15 Target: 15 (Target Met)	15	15	Maintain
8.G: Number of households interviewed in the National Health Interview Survey (Output)	FY 2016: 40,220 Target: 35,000 (Target Exceeded)	35,000	35,000	Maintain
8.H.1: Number of physicians surveyed in the National Ambulatory Medical Care Survey (Output)	FY 2016: 3,859 Target: 3,300 (Target Exceeded)	3,000	3,000	Maintain
8.H.2: Number of unweighted patient visits surveyed in the National Ambulatory Medical Care Survey[1] (Output)	FY 2016: 21,089 Target: 30,500 (Target Not Met)	20,000	20,000	Maintain

[1]NAMCS data collection from electronic health records (EHRs) is still being processed, and is not completely accounted for in this count.

Performance Trends: CDC uses several indicators to measure its ability to provide timely, useful, and high quality data. In FY 2016, CDC met its target by releasing the mortality and natality data at 10.5 months, while simultaneously launching a new monthly national and state-level report on drug overdose deaths to provide critical information for decision makers (Measure 8.A.E.2). With the ongoing epidemic of drug overdose deaths, improving the timeliness of these data provides the tools for evidence-based policy decisions and planning when these decisions are most relevant. Faster access to these data also facilitates timely evaluation and research efforts related to births and all causes of death, providing critical information on public health issues affecting the nation.

To drive program improvements, CDC assesses user satisfaction and perceptions of data utility. The percentage of NCHS' website users who are satisfied with data quality and relevance increased in FY 2017 to 82%, up from the FY 2016 result of 77.6% (Measure 8.A.1.1a). Similarly, CDC interviews Federal Power Users (key federal officials involved in health and health care policy or programs) to assess their satisfaction with CDC's Health Statistics products and services including data quality, ease of data accessibility and use, professionalism of staff, relevance of data to major health issues, and relevance of data to user needs. CDC met its 2017 target with 100% of federal power users rating CDC as Good or Excellent (Measure 8.A.1.1b).

CDC tracks the number of web visits as a proxy for the frequency with which NCHS data are used. CDC did not meet its target for web visits in FY 2017, falling below FY 2016 levels with 11.7 million web visits to NCHS webpages (Measure 8.A.1.3). This continues CDC's trend, since FY 2013, of nearly 12 million NCHS web visits annually. The Vital Statistics Rapid Release program provides access to the timeliest vital statistics for public health surveillance, through quarterly releases of provisional estimates of births, deaths, and infant deaths. For the 15 leading causes of death and drug overdose deaths, quarterly estimates are compared with estimates for the corresponding quarters from the previous year, providing more timely information on important public health indicators. This program helps to increase public interest in the data and enables potential users to easily find the most recent data. A new initiative was launched in 2017 to provide the earliest information on a recognized public health crisis: drug overdose deaths. To better inform policy and decision makers, counts of provisional drug overdose deaths are published monthly at the national and state level along with the percent change in these days over the previous 12 months.

CDC monitors the implementation of its national surveys to ensure the collection and provision of accurate, high quality data. The National Health and Nutrition Examination Survey mobile examination centers met the target by visiting the planned 15 communities in FY 2017 (Measure 8.F) to achieve the geographic diversity needed for nationally representative estimates. The National Health Interview Survey (NHIS) interviewed 40,220 households in 2016, close to the number of households interviewed in 2015. This exceeded the targeted 35,000 households (Measure 8.G). The target number of physicians surveyed by the National Ambulatory Medical Care Survey (NAMCS) has declined significantly from 2015 from 8,000 to 3,300 due to limited resources. The reduced sample size is close to the annual baseline target for the survey. In FY 2016, NAMCS exceeded the target by almost 17% as the survey reached 3,859 physicians (Measure 8.H.1). The number of patient records surveyed by NAMCS did not meet the targeted 30,500, due in part to a decline in the response from physicians for the provision of patient records. The survey program is engaged with providers to reduce burden and facilitate greater participation by encouraging the submission of electronic health records rather than having field representatives complete the traditional patient record form. CDC anticipates the submission of EHRs will increase the number of patient records received from providers (Measure 8.H.2). The data from these surveys are critical for monitoring insurance coverage, access and utilization, and other key indicators at the state and national level to inform the public and decision makers. CDC's NHIS and NAMCS samples size targets reflect annual sample sizes that can be achieved with FY 2019 resources (Measures 8.G, 8.H.1., 8.H.2).

Surveillance, Epidemiology, and Laboratory Services (CSELS)

Performance Measures for Long Term Objective: Lower barriers to data exchange across jurisdictions as part of an integrated strategy for public health surveillance and response

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
8.B.1.3a Increase the percentage of public health agencies that can receive production Electronic Laboratory Reporting (ELR) Meaningful Use compliant messages from certified Electronic Health Record (EHR) technology used by eligible hospitals[1,2] (Output)	FY 2016 92% Target: 72% (Target Exceeded)	95%	95%	Maintain
8.B.1.3c Increase the percentage of public health agencies that can receive production Syndromic Surveillance (SS) Meaningful Use compliant messages from certified Electronic Health Record (EHR) technology[1,2] (Output)	FY 2017: 82% Target: 90% (Target Not Met)	90%	90%	Maintain
8.B.1.4 Increase the percentage of notifiable disease messages transmitted in HL7 format to improve the quality and streamline the transmission of established surveillance data (Output)	FY 2017: 5% Target: 40% (Target Not Met But Improved)	40%	40%	Maintain

[1]ELR: The work of state public health agencies reflected in this measure is funded by the National Center for Emerging and Zoonotic Diseases through the Epidemiology and Laboratory Capacity Cooperative Agreement.

[2]CDC does not currently track the percentage of agencies that can send EHR Meaningful Use compliant messages, but this may be possible, pending the inclusion of this requirement in the final Meaningful Use Stage 3 criteria issued by the Office of the National Coordinator for Health Information Technology.

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
8.B.2.1a Increase the electronic media reach of the Morbidity and Mortality Weekly Report (MMWR) through use of mechanisms such as the MMWR website and social media outlets, as measured by page views, social media followers, and email subscribers (Output)	FY 2017: 19,740,332 Target: 25,365,609 (Target Not Met)	25,365,609	25,365,609	Maintain
8.B.2.2 Increase the electronic media reach of CDC Vital Signs through use of mechanisms such as the CDC website and social media outlets, as measured by page views social media followers, and texting and email subscribers[1] (Output)	FY 2017: 4,740,498 Target: 5,024,324 (Target Not Met but Improved)	5,526,756	5,024,324	-502,432

[1]An inflation in Vital Signs electronic reach metrics occurred between April 2014 and November 2015. Results for FY 14-FY 16 and the FY 17 target were revised to correct for inflated numbers.

Performance Measures for Long Term Objective: Improve the efficiency and accuracy of public health and clinical laboratory testing

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
8.B.3.2a Increase the percentage of public health and clinical laboratory professionals who improve laboratory policies and practices as a result of participating in CDC laboratory training (Outcome)	FY 2017: 45% Target: 65% (Target Not Met)	70%	73%	+3

Public Health Informatics Performance Trends: CDC tracks the contribution of the informatics program and CDC program partners through the Electronic Health Records – Meaningful Use (EHR-MU) initiative. CDC works to assess and ensure readiness of two key systems in each state: Electronic Laboratory Reporting (ELR) and Syndromic Surveillance (SS). Public health agencies will assess their capability to receive data in a Meaningful Use-compliant format (i.e., Health Level 7 (HL7) 2.5.1 standard) from eligible hospitals and providers, meaning those with certified electronic health records (EHRs) participating in the Centers for Medicare and Medicaid Services' (CMS') Meaningful Use program. In FY 2016, CDC demonstrated significant capability gains for Electronic Laboratory Reporting (ELR) increasing from 86% in FY 2015 to 92% in FY 2016 (Measure 8.B.1.3a), exceeding the 2015 target. Syndromic Surveillance capability encountered a change in reporting criteria, falling short of the FY 2017 target of 90% but improving over the FY 2016 result (Measure 8.B.1.3.c).

Surveillance Performance Trends: The National Notifiable Diseases Surveillance System (NNDSS)[194] is a CDC collaboration with state and local public health agencies to collect and report data on approximately 120

[194] http://wwwn.cdc.gov/nndss/

diseases and conditions under continuous nationwide surveillance. In line with the CDC Surveillance Strategy, NNDSS' infrastructure was modernized to more efficiently provide comprehensive, timely, and high quality data for public health decision making. A modernized surveillance infrastructure allows CDC programs to better monitor the impact of public health interventions. These new modifications were tested in key states and for a limited set of diseases, and are currently being applied to additional diseases and implemented in states for use in transmitting data to CDC.

During FY 2017, CDC advanced the modernization of infectious disease surveillance by producing technology upgrades to the Message Validation, Processing and Provisioning System[195], which receives production data from the states using the new HL7-based messages. This system streamlines data processing to more efficiently provide the data to CDC programs for analysis and action. When new HL7 messages have been implemented for all diseases, the new strategy will allow the retirement of older, less efficient legacy systems, and will increase the number of HL7 messages received at CDC. For example, CDC is modernizing infectious disease surveillance by doing the following:

- Placing the Arboviral diseases, Hepatitis, and Generic Version 2 message mapping guides into full production, allowing CDC programs to receive HL7 formatted messages from states for certain diseases. With these three initial HL7 messages and 12 more that are in development, the HL7 messages underway address 95 percent of the conditions sent through NNDSS.
- Establishing the Technical Assistance Resource Center (TARC), an asset to support state and local governments as they transition their systems to using the new guides. With the support of the TARC, 16 of the 57 reporting jurisdictions implemented at least one of the new messages and 8 of the 16 implemented more than one.

Although CDC did not meet its FY 2017 target, the five percent achievement represents an increase over the proportion in FY 2016 and the FY 2015 baseline (Measure 8.B.1.4). Competition for limited resources at both the federal and state levels, is the single most significant impact on movement toward achieving the yearly objectives. As an example, during FY 2016, resources for this project were diverted to receiving, processing, and disseminating Arboviral disease data (i.e., Zika-related case notifications) in support of the FY 2016 Zika virus response. The FY 2017 accomplishments demonstrate increasing momentum toward achieving the targets in outlying years.

Epidemiology Performance Trends: CDC provided critical epidemiological data and recommendations for solving public health problems to over 300,000 clinicians and public health professionals through an extensive network of electronic communication channels for the Morbidity and Mortality Weekly Report (MMWR), a 10 percent increase from FY 2016. During FY 2017, MMWR published 339 reports, similar to FY 2016. MMWR's content is shared widely, with traditional and social media coverage averaging in the top 3 percent compared with other journals. MMWR also is highly respected. During FY 2016 and FY 2017, it ranked 2nd among 170 public, environmental, and occupational health journals. While the above measure has been stable or increased during FY 2016− FY 2017, there was a 30% decline in webpage views which drives MMWR's total electronic reach (Measure 8.B.2.1a). The decline in MMWR website views is consistent with the 40% decline in CDC website views during the same period. The declines might be due to system-wide challenges and to the fortunate circumstance that there has been no major new public health crisis during FY2017, such as Ebola in FY 2015 and Zika in FY 2016. MMWR was a critical resource during the global responses to Ebola and Zika virus, rapidly publishing updates and guidance.

During FY 2017, MMWR implemented enhancements to improve functionality, production processes, and dissemination of content. These included search engine optimization for users to discover content more easily; new features on the MMWR website that include more impact metrics about individual reports; and a new

[195] https://www.cdc.gov/nmi/mvps.html

submission system for the MMWR Weekly. CDC also launched a new podcast series, Defining Moments in MMWR, and a monthly continuing education collaboration with Medscape to increase the number of clinicians following CDC guidance.

CDC Vital Signs is a monthly science and communication program that targets the public, state and local health departments, healthcare professionals, and policymakers through an MMWR report, fact sheet, and print, broadcast, social, and electronic media. Vital Signs reached 94% of its target goal despite releasing one fewer issue this year and program maturation (Measure 8.B.2.2). Vital Signs continues to increase its reach year-over-year. Electronic reach increased by 4 percent from FY 2016 – FY 2017 and has grown more than four times since its first full year of publication in FY 2011 (electronic reach FY 2011 = 1,113,531). The number of media stories remains high with a monthly average of 649 in FY 2017. Results for FY 2014- FY 2016 and the FY 2017 target were revised to correct an artificial inflation in electronic reach. The FY 2019 target is reflective of a 6% increase in reach from FY 2017 results.

The Community Preventive Services Task Force (CPSTF) is an independent, nonpartisan, external panel of population health and prevention experts that generate evidence-based recommendations on programs and services that work to improve health and save money. The Community Guide website is the primary dissemination tool for more than 230 CPSTF recommendations. In FY 2019, measurement of page views (Measure 8.B.2.5) will be discontinued as it reflects the legacy website that was replaced with a new Community Guide Knowledge Management System in October FY 2016. The new website received 1,901,432 page views for FY 2017.

Laboratory Standards and Services Performance Trends: In FY 2017, CDC delivered 36 different courses including topics on such infectious disease, laboratory preparedness, and biosafety. The 36 courses included 16 online (eLearning) courses, seven multi-day lectures with hands-on laboratory workshops, and 13 live or recorded one-hour update webcasts. CDC assessed training outcomes for all training modalities. A follow-up online questionnaire was sent to participants who successfully completed the courses to ascertain whether or not changes were made to laboratory procedures, policies, practices, algorithms or methods based on applying information from the courses.

Overall, 45% of respondents indicated a change outcome (Measure 8.B.3.2a). The proportion of individuals reporting change differed by training modality and the intended purpose of the training. A higher proportion of participants reported changes from hands-on laboratory workshops and eLearning courses intended to transfer new knowledge. A much lower proportion of respondents reported changes were made from webinars intended to provide refresher information. CDC did not meet its FY 2017 target due to misalignment of the existing measure and the supporting outcome data. While results showed significant gains in reach of webinar participants, this yielded a decreased change in outcome based on the intended purpose for participation. This discrepancy is consistent with the difference between training intended to teach laboratory methods or practices (eLearning courses and lecture or laboratory courses) and webinars that are intended to provide updates or information on a variety of topics. This data indicates a need to revise the measure, indicators, and appropriate training modalities as needed to more accurately reflect actual outcomes.

Public Health Workforce and Career Development

Performance Measures for Long Term Objective: Develop and implement training to provide for competent, sustainable, and empowered public health workforce able to meet emerging and future health challenges

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
8.B.4.2 Increase the number of CDC trainees in state, tribal, local, and territorial public health agencies[1] (Output)	FY 2017: 504 Target: 388 (Target Exceeded)	335	294	- 41
8.B.4.4 Increase the number of CDC's free accredited courses passed by learners to earn Continuing Education (CE), demonstrating successful achievement of educational content (Output)	FY 2017: 335,312 (Baseline)	377,000	350,000	- 27,000

Performance Trends: CDC's fellowship programs promote experiential service and mentored learning, at the agency and in the field. All of our programs offer unique experiences in one of many public health critical disciplines, including applied epidemiology, public health management, and informatics. This focus on service while learning allows our fellows and trainees to fill critical workforce needs at CDC and in state, tribal, local, and territorial (STLT) public health agencies, while training for careers in public health.

CDC increased the number of fellows and trainees in STLT public health agencies from 119 trainees in FY 2009 to 504 in FY 2017 by targeting funding to fellowship programs that place fellows in STLT public health agencies rather than at CDC headquarters (Measure 8.B.4.2).

Focusing funding on field placement programs offers our fellows and trainees an invaluable opportunity to work alongside other professionals across a variety of public health settings. Throughout these training programs, CDC provides hands-on experience that will serve as a foundation for our fellows' public health careers. After completing CDC programs, graduates are qualified to apply for jobs with public health agencies and organizations.

Performance levels increased in FY 2016 and FY 2017, however, CDC expects levels to fall in FY 2018 due to budget constraints. CDC has adjusted targets to reflect significant programmatic shifts due to these budget constraints. For instance, CDC will no longer be able to provide full support for essential disease detectives and rapid outbreak responders who serve on the front lines of public health and support CDC's emergency response efforts whenever outbreaks occur.

In the next five to ten years, a substantial number of long-time public health workers plan to leave their jobs or retire, taking with them critical knowledge and experience[196]. The next generation of public health professionals need to be trained and prepared to fill these vacancies. Additionally, the current workforce must stay up-to-date on the latest science, guidelines, and recommendations from CDC to inform both public health and healthcare practice. Continuing education (CE) credits for seven different disciplines—delivered at little to no cost for the employee—provides the learning opportunities and the incentive for practitioners to continue to learn. CDC's Training and Continuing Education Online program designs, develops, and accredits quality learning

[196]Association of State and Territorial Health Officials and the du Beaumont Foundation. Public Health Workforce Interests and Needs Survey (PH WINS). Journal of Public Health Management & Practice. November/December 2015. Volume 21, Supplement 6.

opportunities and ensures these opportunities are available to the public health and health care workforce. Access to training and education is essential for the public health workforce to maintain and improve knowledge and skills for the greatest public health impact possible.

CDC is introducing a new measure to reflect the number of CDC free accredited courses passed by learners to earn CE, demonstrating successful achievement of educational content (Measure 8.B.4.4). CDC provides accredited training and learning opportunities to the public health workforce to help ensure workers are able to maintain licensure and certification requirements, improve knowledge and skills, and ultimately enhance their overall competency. In FY 2017, over 335,312 free CE credits, contact hours, and units were awarded to over 142,000 unique health professionals who earned CE 335,312 times, resulting in over $3 million in savings to the workforce as free continuing education. CDC determined the targets by forecasting formulas with data on this measure from FY 2012-2017.

OCCUPATIONAL SAFETY AND HEALTH

Performance Trends: The National Institute for Occupational Safety and Health (NIOSH) was established by the Occupational Safety and Health Act of 1970 to generate new knowledge in occupational safety and health and to transfer that knowledge to employers and employees. Research efforts are aligned under the National Occupational Research Agenda (NORA), which is a public-private partnership that identifies critical needs and transfers scientific findings to keep people safe and healthy at work. CDC's FY 2019 occupational safety and health research activities will be consolidated into the National Institutes of Health (NIH) and presented as a separate entity within the NIH budget request. Additional information on these activities, can be found in the FY 2019 NIH Budget justification documents.

GLOBAL HEALTH

Global HIV/AIDS

Performance measures for Long Term Objective: Partner with ministries of health, international and local partners and other United States Government (USG) agencies to achieve the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) goals of reducing the worldwide rate of new HIV infections and saving lives by focusing on three highly effective, evidence-based HIV interventions: (1) antiretroviral treatment for prevention and health benefits, (2) voluntary medical male circumcision, (3) laboratory and point of care testing site quality improvement programs.

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
10.A.1.5: Increase the number of adults and children with HIV infection receiving antiretroviral therapy (ART) (Output)	FY 2017: 7,330,759 Target: 7,200,000 (Target Exceeded)	6,930,759	6,730,759	-200,000
10.A.1.7: Increase the number of males age 15 and over circumcised as part of the minimum package of male circumcision for HIV prevention services[1] (Output)	FY 2017: 1,636,815 Target: 1,050,000 (Target Exceeded)	950,000	700,000	-250,000
10.A.1.8: Increase the total number of laboratories and Point of Care Testing sites enrolled in a continuous quality improvement program (Output)	FY 2017: 6,675 (Baseline)	6,675	6,675	Maintain

[1] Targets and results reflect the revised PEPFAR definitions of support that were implemented in January 2014. The numbers include individuals who receive PEPFAR/CDC support at direct service delivery sites and technical assistance for service delivery improvement sites.

Performance Trends: Global HIV funding supports CDC's essential role in implementing the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) in more than 50 countries. Creating an AIDS-free generation is a priority for the U.S. Government. Preventing new HIV infections is achievable and critical to stem the global HIV epidemic, even in the absence of a HIV vaccine.

Through its work with PEPFAR and in-country partners, CDC has helped reduce AIDS-related deaths by focusing on accountability, quality, and the use of data to improve decision-making and to enhance program focus. Current estimates suggest that CDC-supported antiretroviral therapy (ART) averted more than 2.2 million new infections and 5.4 million deaths between 2010 and 2016.

In partnership with local governments and Ministries of Health in 35 countries and four World Health Organization (WHO) regions, CDC-supported programs helped provide ART to 7,330,759 men, women, and children living with HIV, of the 13.3 million supported by PEPFAR (Measure 10.A.1.5). CDC met and exceeded its treatment target for FY 2017, achieving landmark levels. CDC headquarters staff will continue to work with in-country CDC staff to:

(1) Collaborate with Ministries on planning and initiating Test and Start[197],

(2) Develop differentiated models of care;

(3) Assist countries in rolling out viral load testing; and

(4) Pilot and expand models for distance mentoring of clinical staff at ART sites.

In FY 2017, CDC-supported partners in 12 high priority PEPFAR countries performed 1,636,815 voluntary medical male circumcisions (VMMCs) of males aged 15 and older by a qualified clinician, exceeding the 2017 target and representing the highest single year performance since baseline reporting began in FY 2011 (Measure 10.A.1.7). CDC collaborates with country programs to scale-up VMMC by expanding task shifting, increasing the number of dedicated VMMC teams, and supporting mobile services. CDC continues to focus on safety and has developed an adverse events management and reporting guide for use in both VMMC service programs and community health facilities which may see clients in follow up. In addition, CDC continues to help programs address rare cases of tetanus among VMMC clients and is adapting service delivery programs to reach men at higher risk of HIV. CDC will continue to focus on outreach services to hard-to-reach populations in the highest burden regions and evaluating sustainable program delivery models for programs reaching their established goals of circumcising at least 80% of men in their communities.

Laboratory testing is the only way to diagnose and confirm existence of disease, gauge if medications are working, and measure overarching vital indicators. Point of Care Testing (POCT) sites allow traditional laboratory testing to be completed near the point of care or near the patient. CDC developed and implemented a Continuous Quality Improvement (CQI) process for laboratories and Point of Care Testing (POCT) sites to support accuracy of results. The CQI process works with sites to improve quality by continuously evaluating how they work and identifying ways to improve their processes. This reduces waste, increases efficiency, and increases staff (internal) and patient (external) satisfaction. The more laboratory and POCT sites that participate in CQI processes and receive accreditation or become certified, the more trust is built into the system. Trust in the accuracy of tests allows those who are found to be HIV positive to be immediately placed on medications which reduces the virus in the blood, lowers opportunity for continued HIV transmission, and moves CDC closer to its goal of ending the HIV epidemic. By the end of 2017, CDC supported an enrollment of 6,675 laboratories or POCT sites in a CQI program from more than 50 countries (Measure 10.A.1.8).

CDC provides scientific expertise to support all CDC Global HIV countries working directly with Ministries of Health to achieve and sustain HIV epidemic control and address the needs of the current 6.4 million people living with HIV. CDC anticipates a decline in resources in FY 2018 and FY 2019, which will affect its ability to support the global HIV/AIDS activities described earlier. CDC adjusted targets for Measures 10.A.1.5 and 10.A.1.6 to reflect the impact of resource constraints on the measures' programmatic areas of focus and has left targets level for Measure 10.A.1.8.

[197]https://www.cdc.gov/globalhivtb/who-we-are/resources/keyareafactsheets/scaling-up-hiv-care-and-treatment.pdf

Global TB

Performance measures for Long Term Objective: Partner with ministries of health, international and local partners and other United States Government (USG) agencies to speed up progress in the fight against TB worldwide, by focusing on highly effective, evidence-based TB interventions, to include reaching the high-risk HIV population

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
10.G.1: Increase the number of adults and children with TB and HIV infection receiving antiretroviral therapy (ART) (Output)	FY 2017: 135,525 Target: 186,381 (Target Not Met)	120,000	70,000	-50,000

Performance Trends: A fourth of the world's population – some 2 billion people – are infected with Tuberculosis (TB) bacteria, with nearly 10.4 million becoming ill with the disease each year. Making TB the leading cause of death by an infectious disease worldwide and the leading cause of death for those living with HIV (PLHIV). In 2016, 7 million people perished from TB, including 0.4 million PLHIV. Effectively addressing TB in the United States requires global TB intervention. CDC plays an important role in this effort and is an integral part of the U.S. Government's efforts to address global TB through PEPFAR, the Global Health Security Agenda[198] (GHSA), the National Strategy for Combating Antibiotic-Resistance Bacteria, and the National Action Plan to Combat Multidrug-Resistant TB[199].

To speed up progress against TB, CDC is developing best practices in laboratory science to diagnose TB, supporting cutting-edge research to create better TB screening tests, helping to create the global roadmap to stop TB in children, and establishing effective strategies to end TB transmission in health facilities. Access to and initiation of ART for those found to be living with HIV and TB is imperative to reducing the burden of disease, and in an effort to support this strategy, CDC's global TB program initiated ART with 135,525 people living with HIV and TB in 2017 (Measure 10.G.1). The global TB program did not meet its FY2017 target, this was due to adjustments in target setting and collective criteria at the country level during FY2016. To increase the number of people on ART, CDC supports the provision of ART within TB medical clinics as an integrative approach, providing frequent TB testing of HIV positive clients, and providing TB treatment at HIV treatment centers. However, with decreased resources in FY 2018 and FY 2019, CDC will not scale up as fast or maintain the same levels of performance.

Global Immunization

Contextual Indicator for Long Term Objective: Help domestic and international partners achieve World Health Organization's goal of global polio eradication

Contextual Indicator	Most Recent Result	FY 2020 Target
10.B.1.3: Reduce the number of countries in the world with endemic wild polio virus (Outcome)	FY 2016: 3	0

[198] https://www.cdc.gov/globalhealth/security/ghsagenda.htm
[199] https://www.cdc.gov/globalhivtb/images/usg-mdr-napreport-2016-final.pdf

Performance measure for Long Term Objective: Help domestic and international partners achieve World Health Organization's goal of global polio eradication

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
10.B.1.2a: Increase the number of children vaccinated with Polio Vaccine as a result of non-vaccine operational support funding to implement national or subnational supplemental immunization campaigns in Asia, Africa, and Europe (Output)	FY 2016: 6,925,925 Target: 18,000,000 (Target Not Met)	10,000,000	5,000,000	-5,000,000

Contextual Indicator for Long Term Objective: Work with global partners to reduce the cumulative global measles-related mortality by 95% compared with CY 2000 estimates (baseline 777,000 deaths) and to maintain elimination of endemic measles transmission in all 47 countries of the Americas

Contextual Indicator	Most Recent Result	FY 2020 Target
10.B.2.1: Reduce the number of global measles-related deaths[1] (Outcome)	FY 2016: 90,000	30,000

[1] The Measles and Rubella Initiative formulated an improved method for calculating global measles mortality in late 2010 following measles outbreaks in Africa in 2009 and 2010. The actual results from 2009 onward reflect the improved measurement.

Performance measures for Long Term Objective: Work with global partners to reduce the cumulative global measles-related mortality by 95% compared with CY 2000 estimates (baseline 777,000 deaths) and to maintain elimination of endemic measles transmission in all 47 countries of the Americas

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
10.B.2.2: Maintain number of non-import measles cases in all 47 countries of the Americas as a measure of maintaining elimination of endemic measles transmission (Outcome)	FY 2016: 0 Target: 0 (Target Met)	0	0	Maintain
10.B.2.3: Increase the number of countries that achieve at least 90% immunization coverage in children under 1 year of age for DTP3 (three shot series of vaccines covering diphtheria, tetanus, and pertussis) (Outcome)	FY 2016: 131 Target: 143 (Target Not Met but Improved)	143	143	Maintain

Efficiency Measure for Global Immunization

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
10.B.E.1: Increase the percentage of the annual budget that directly supports the program purpose in the field (Efficiency)	FY 2016: 80% Target: 90% (Target Not Met)	89%	88%	-1

Performance Trends: Global immunization funding advances polio eradication and measles mortality reduction and elimination efforts. CDC is the lead technical monitoring agency for the Independent Monitoring Board of the Global Polio Eradication Initiative[200] (GPEI). The number of countries reporting endemic wild poliovirus (WPV) remained at three countries in FY 2017. Although a year has passed since cases were reported in Nigeria, much of Borno state remains inaccessible. This prevents Nigeria's removal from the endemic country list.

Countries at highest risk for polio importation and circulating vaccine-derived poliovirus outbreaks have low routine immunization coverage levels (less than 80%), sub-optimal outbreak response, and weak health systems. CDC's expanded measure of polio vaccination (10.B.1.2a) improves accuracy by measuring children vaccinated by all types of polio vaccine. It reflects changes to the composition of the global supply of polio vaccine and CDC's enhanced financial support for operational costs of supplemental vaccination rounds, including social mobilization. In FY 2016, CDC vaccinated 6,925,925 children with polio vaccine in Asia, Africa, and Europe. Though CDC did not meet its FY 2016 target, the downward trend of this result, represents growing geographic isolation of wild poliovirus, and a decrease in the number of vaccination campaigns that are run at a higher quality. CDC's lead role as one of the five core partners in the Global Polio Eradication Initiative (GPEI) will be limited which will eliminate the capacity to verify interruption of poliovirus circulation in 10 high-risk countries. However, CDC will continue to work with partners to reach its vaccination targets, focusing efforts on those areas that have been historically difficult to reach due to security issues and/or political instability.

Reducing cumulative global measles-related mortality by 95% compared with CY 2000 estimates presents unique challenges. Since CY 2008, CDC's collaboration with the Pan American Health Organization has helped ensure cases are contained, hampering a resurgence of measles in the U.S. (Measure 10.B.2.2). For the first time, measles-related mortality fell under 100,000 in CY 2016, falling from 134,200 in CY 2015 to 90,000 in CY 2016, representing an 84% decrease since CY 2000 (Measure 10.B.2.1). CDC is working closely with its partners to implement improvements to the quality of the supplemental immunization activities and target efforts to areas with high measles-related mortality.

The number of countries that achieve at least 90% immunization coverage in children under one year of age for DTP3 (third dose diphtheria, tetanus, pertussis vaccine) is the globally accepted performance indicator for national immunization programs. The number of countries meeting this coverage threshold for DTP3 increased slightly from 126 in FY 2015 to 131 in FY 2016 (Measure 10.B.2.3). The increase comes from countries that were able to regain losses from recent years to cross back over the 90% coverage level. Eleven countries report coverage of 87-89%, which indicates how close many nations are to reaching the target. To assist both countries who struggle to maintain gains and those that struggle to reach the 90% target, CDC is working to develop targeted interventions based on supply and demand factors that can impact and increase coverage.

In FY 2016, 80% of program funding directly supported field-related activities (Measure 10.B.E.1), a downward trend from FY 2015 support of 84%. The reversal of what had been an improving trend is the result of a greater number of field positions unfilled in FY 2016, as people previously assigned overseas were required to return to CDC headquarters, along with increased administrative costs of managing increasingly complex cooperative

[200] http://www.polioeradication.org/

agreements. While CDC headquarters-based staff conduct work that directly bears on the overseas mission, unless they are on temporary duty in the field, their staff costs are not included in calculating the efficiency measure. CDC continues to review cost reduction options on a monthly basis to minimize administrative overhead while maximizing direct spending for field-related activities. Continued plans to achieve the 89% and 88% thresholds in FY 2018 and FY 2019, respectively, include temporarily assigning a higher percentage of staff to the field and increasing the number of days spent in the field. Once active circulation of poliovirus ceases, CDC will return to normal emergency operations center activation staffing levels and begin normal polio eradication activities until global certification is achieved.

Global Health Protection

Performance measure for Long Term Objective: Build outbreak detection and response public health capacity in support of the International Health Regulations (2005)

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
10.E.1: Increase the percentage of outbreak and possible Public Health Emergencies of International Concern assistance requests that are handled in a timely manner (within 24 hours)[1] (Outcome)	FY 2016: 62% Target: 83% (Target Not Met)	83%	83%	Maintain
Measure ID 10.E.2: Percentage of outbreak investigations that received laboratory support (Output)	FY 2016: 61% (Baseline)	70 %	70%	Maintain

[1]Starting in FY 2017, CDC targets and results reflect annual data instead of cumulative data.

Performance Trends: CDC's Global Health Protection work, both in headquarters and the field, limits national, regional, and international global health security threats. Following the launch of the Global Health Security Agenda (GHSA) in FY 2014, CDC continues to work closely with U.S. Government and international partners to improve disease prevention, detection, and response.

The Global Disease Detection[201] (GDD) monitoring and evaluation program captures quarterly data to monitor progress and assess the impact of GDD Centers. CDC increased the proportion of outbreak and possible Public Health Emergencies of International Concern assistance requests handled in a timely manner (within 24 hours) from a baseline of 70% in FY 2009 to 79% in FY 2011. However, timely handling of requests hovered between 72% in FY 2012 and 73% in FY 2013 and dropped to 62% in FY 2016 (Measure 10.E.1). This decrease may be due to the volume of requests received, type of assistance requested, location of the outbreak, and maturity of the GDD Center providing the response. In October of FY 2017, the Global Disease Detection Program brought on a Monitoring and Evaluation Specialist. Additional support for data quality and management will strengthen reporting and provide training to staff in the field on the metrics before they are asked to complete quarterly reports.

GDD Centers work to improve laboratory capacity to rapidly identify and respond to pathogens of public health significance in host countries and within the region. A confirmed diagnosis allows countries to conduct appropriate intervention or response activities, which are crucial for immediate outbreak containment and prevention of future outbreaks. In FY 2016, 61% of the total outbreak investigations conducted received laboratory support from GDD (Measure 10.E.2). Requests for outbreak response support to GDD Centers do not always include requests for laboratory support, but Centers will continue to provide technical assistance to host

[201]http://www.cdc.gov/globalhealth/healthprotection/gdd/index.html

country partners as they develop their National Laboratory and Response Plans in order to encourage requests for laboratory support. GDD Centers use this information to encourage host country Ministries of Health to perform comprehensive outbreak investigations including collecting samples for laboratory confirmation testing when required.

Performance measures for Long Term Objective: To increase the number of public health staff skilled in epidemiology and surveillance in low and middle-income countries

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
10.F.1a: Increase epidemiology and laboratory capacity within global health ministries through the Field Epidemiology Training Program (FETP) New Residents (Outcome)	FY 2016: 470 Target: 430 (Target Exceeded)	400	400	Maintain
10.F.1b: Increase epidemiology and laboratory capacity within global health ministries through the Field Epidemiology and Laboratory Training Program (FELTP) Total Graduates (Outcome)	FY 2016: 3,788[1] Target: 3,700 (Target Exceeded)	4,500	4,900	+400

[1]FY 2016 results are provisional and will be updated once final data is collected.

Performance Trends: International Field Epidemiology Training Programs (FETP) are recognized worldwide[202] as an effective means to strengthen countries' capacity in surveillance, epidemiology, and outbreak response. As of FY 2016, there were 470 new residents of the FETP program, exceeding the FY 2016 target by 40 (Measure 10.F.1a). The Field Epidemiology and Laboratory Training Program (FELTP) trained 3,788 epidemiologists in the advanced program across more than 70 countries as of FY 2016, exceeding its target of 3,700 and surpassing FY 2015 results by 121 graduates (Measure 10.F.1b). These graduates strengthen public health capacity so individual countries are able to transition from U.S.-led global health investments to more long-term host country ownership. On average, 80% of FETP graduates work within their Ministry of Health after graduation and many assume key leadership positions. In FY 2019, CDC plans to reduce the number of FETP and FELTP fellows trained. This will reduce the number of frontline disease detectives, laboratorians, and public health professionals available to collect and analyze data, which will hinder capacity to track and tackle potential global outbreaks affecting the United States. For instance, during the West Africa Ebola epidemic, CDC-trained disease detectives from the Democratic Republic of Congo quickly deployed to Guinea and began contact-tracing and monitoring, proving to be a critical contribution to ending the epidemic before further spread. This collaboration would not have worked without essential training programs supported by CDC.

[202] Traicoff D et al. 2015. Strong and flexible: Developing a three-tiered curriculum for the Regional Central America Field Epidemiology Training Program. Pedagogy in Health Promotion 1(2): 74–82. http://php.sagepub.com/content/1/2/74.full.pdf+html

Parasitic Diseases and Malaria

CDC Contextual Indicators for Long Term Objective: Decrease the rate of deaths from all causes in children under five in the President's Malaria Initiative[203] (PMI) target countries

Contextual Indictors	Most Recent Result	FY 2020 Target
10.C.1: Increase the percentage of children under five years old who slept under an insecticide-treated bed net the previous night in PMI target countries[1] (Outcome)	FY 2016: 52% (median)	85%

[1]PMI was implemented in each of the 19 focus countries by 2012. Therefore starting in FY 2014, data from all 19 countries were included to calculate the median, using the most recent estimate available from each country.

Budget Output Measure for Long Term Objective: Decrease the rate of deaths from all causes in children under five in the President's Malaria Initiative (PMI) target countries

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
10.C.A: The number of CDC authored publications that inform the global evidence for malaria control and prevention programs (Output)	FY 2016: 149 Target: 65 (Target Exceeded)	150	155	+5

CDC Performance Measure for Long Term Objective: To deliver timely and accurate reference diagnostic laboratory services for the detection of parasites in specimens submitted by domestic and international public health partners to CDC

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
10.C.4: The percentage of laboratory test results reported within the expected turn-around time upon receipt by CDC labs (Outcome)	FY 2016: 96.7% Target: 90% (Target Exceeded)	90%	90%	Maintain

Performance Trends: Malaria prevention and treatment tools are among the most cost-effective interventions available to improve global maternal and child health and survival. CDC's research informs the development of new tools to manage and mitigate threats from drug and insecticide resistance, guides future program and policy decisions, and builds the capacity of host country governments through strategic partnerships.

The President's Malaria Initiative[204] (PMI), which is led by USAID and co-implemented together with CDC, has been scaling up the use of malaria prevention and treatment tools in select countries since 2005, and expanded to 19 countries and the Greater Mekong Sub-region as of 2012. In 2017 PMI announced expansion to an additional 5 countries.

The percentage of children under five years old who slept under an insecticide-treated bed net the night before decreased slightly in 2016 to 52%, compared to 54% in 2015 (Measure 10.C.1). The slight decrease is a reflection

[203]http://www.pmi.gov/
[204] http://www.pmi.gov/

of new data from only a few countries that conducted a national household survey in 2016. National surveys are routinely conducted every two to three years and limits direct comparison from one year to the next. While no PMI countries have achieved the 85% goal, several countries are closing the gap with Madagascar, who is the closest at 84%. PMI anticipates this trend will continue the longer countries are part of PMI and pursue full scale-up of interventions.

CDC continues to develop global policy documents, guidelines and peer-reviewed scientific publications. In addition to the 11th Annual PMI Report to Congress, CDC co-authored key technical reports such as the Malaria Rapid Diagnostic Test Performance[205] (Round 7)[206] in 2017. These reports summarize critical surveillance as well as monitoring and evaluation data that will inform global policy and programming. CDC also co-edited and contributed to a special supplement in the American Journal of Tropical Medicine and Hygiene evaluating the impact of malaria control interventions in sub-Saharan Africa, where most of malaria deaths are among children under the age of five years. Results from these rigorous impact evaluations reinforce the link between malaria intervention scale-up and reductions in malaria morbidity and child mortality. Furthermore, the studies present new methods for evaluating the impact of large-scale malaria control programs in resource-poor settings with simultaneous scale-up of other maternal and child health interventions.

The number of peer-reviewed papers published increased from 144 in FY 2015 to 149 in FY 2016, which exceeds its FY 2016 target by 84 publications and contributes to growing the evidence base to support policy and program needs (Measure 10.C.A).

As a significant health concern in the U.S., malaria and other parasitic diseases have a tremendous impact on global morbidity and mortality, due to increased international travel, importations, and domestically acquired infections. CDC's parasitic disease labs serve as global and national resources for ensuring efficient and high-quality analyses, which are essential to timely and accurate diagnosis and treatment. In FY 2016, CDC analyzed and reported results for 96.7% of submitted specimens in a timely manner (within the expected turnaround times posted in the CDC test directory for each test) exceeding its target by 6.7 percentage points and holding steady from the FY 2015 result (Measure 10.C.4).

[205] http://www.who.int/malaria/publications/atoz/9789241507554/en/
[206] http://apps.who.int/iris/bitstream/10665/141493/1/WHO_HTM_GMP_2014.10_eng.pdf

CDC-WIDE ACTIVITIES AND PROGRAM SUPPORT

Buildings and Facilities

Performance Measures for Long Term Objective: Improve efficiency and sustainability of CDC Facilities

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
12.E.2: Increase the percent of CDC facilities (5,000 square feet and above) that meet the Guiding Principles for High Performance and Sustainable Federal Buildings (Efficiency)	FY 2017: 29.2% Target: 15% (Target Exceeded)	15%	15%	Maintain
12.E.1a: Improve energy (E) consumption per square foot (Efficiency)	FY 2017: 2.8% Target: 5% (Target Not Met but Improved)	7.5%	10%	+2.5
12.E.1b: Improve water (W) consumption per square foot (Efficiency)	FY 2017: 44.4% Target: 18% (Target Exceeded)	20%	22%	+2

Performance Measures for Long Term Objective: Improve CDC's Buildings and Facilities Office's processes and performance[1]

Measure	Most Recent Result and Target	FY 2018 Target[2]	FY 2019 Target[2]	FY 2019 +/- FY 2018
12.2.1c: Improve Condition Index (CI), as measured by the ratio of the functional replacement value (FRV) of an asset with its backlog of maintenance and repair (BMAR) needs (Output)	FY 2017: 81.26 Target: 90 (Target Not Met)	90.0	90.0	Maintain
12.2.1d: Reduce non-mission dependency, as measured by the percentage of real property assets that are not deemed directly necessary to support the Agency's mission (Output)	FY 2017: 1.19% Target: 2% (Target Exceeded)	2%	2%	Maintain
12.2.1e: Improve building utilization[3] (Output)	FY 2017: 5.56% (U) Target: 5% (Target Not Met)	5.00% (U)	5.00% (U)	Maintain
12.2.1f: Improve buildings and facilities operating costs (Output)	FY 2017: $13.39/sq. ft. Target: $10.29/sq. ft. (Target Not Met)	$10.29 /sq. ft.	$10.29/sq.ft.	Maintain

[1]Targets are set by HHS and align to Executive Order 13327; the Federal Real Property Council (FPRC) defines the metrics.

[2]Projected only, targets do not exist from FRPC for beyond FY 2016.

[3]Under-utilized (U); The Federal Real Property Council removed the metric Over-utilization (O) for FY 2013 and forward.

Performance Trends: The Office of Safety, Security and Asset Management (Building and Facilities) equips CDC to carry out its mission in safe, sustainable, and efficient operating facilities. CDC continues to increase the percentage of sustainable facilities (Measure 12.E.2), achieving almost double the 2017 target. In FY 2017, CDC also exceeded its water intensity target by nearly two and one half times the FY 2017 target (12.E.1b). Close monitoring of the Water Signal monitoring systems at the Roybal and Chamblee campuses contributed to continued reductions in water intensity.

CDC's energy intensity reduction improved from 2.7% in FY 2016 to 2.8% in FY 2017 (Measure 12.E.1a). However, the FY 2017 target, which was double the FY 2016 target, was not met. An increased number of winter heating days at the Pittsburgh NIOSH campus, increased generator use at the San Juan campus resulting from Hurricane Irma outages, and a decrease in CDC facility square footage contributed to the target not being met. CDC continues to pursue energy savings projects that will increase the use of renewable energy and decrease electricity costs.

CDC did not meet the condition index (CI) target for FY 2017 (Measure 12.2.1c). The drop in un-weighted CI from FY 2016 to FY 2017 reflects an increase in CDC's Backlog of Maintenance and Repair (BMAR) from $107M in 2016 to over $135M in 2017 (for active, owned buildings). The largest, mission-critical, and mission dependent assets continue to be maintained at a high level, with a weighted average of 96.27 for FY 2017.

CDC met its Mission Dependency target (Measure 12.2.1d) for FY 2017 with a result of 1.19%. The Mission Dependency score increased from 0.78% in 2016 to 1.19% in FY 2017, but still exceeded the target of 2%.

CDC's under-utilized assets were 5.56% of the inventory for 2017. Although CDC disposed of fifteen buildings and structures, the target was not met. However, the percentage of under-utilized assets was down significantly from 7.55% in 2016 (Measure 12.2.1.e). As CDC continues to dispose of under-utilized assets, this value should continue to drop.

CDC's operating costs increased by $1.09/sq.ft. to $13.39/sq.ft. in FY 2017 (Measure 12.2.1f). Although overall utility costs dropped in 2017, operations and maintenance costs rose, resulting in a net increase. The operating cost targets did not take high-operating-cost laboratory assets into account when the metric was created. CDC's laboratories have disproportionately higher operating costs compared to other assets. Laboratory buildings comprise approximately 44% of the total asset inventory's square footage. CDC's metric has changed by less than $1/square foot since FY 2005. CDC has previously performed benchmarking studies that indicate our asset portfolio is in the medium range of operating costs for similarly equipped, institutional and private portfolios.

PUBLIC HEALTH LEADERSHIP AND SUPPORT

State, Tribal, Local and Territorial Support

Performance Measures for Long Term Objective: Improve the capacity and performance of state, tribal, local and territorial public health agencies to more efficiently and effectively manage and deliver high quality programs and services to protect the public's health

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
11.B.4.1a (State): Increase the percentage of nationally PHAB[1] accredited state public health agencies (Intermediate Outcome)	FY 2017: 60.7% Target: 40% (Target Exceeded)	60%	65%	+5
11.B.4.1b (Local): Increase the percentage of nationally PHAB[1] accredited local public health agencies (Intermediate Outcome)	FY 2017: 10.7% Target: 10% (Target Exceeded)	11.5%	13%	+1.5

[1]Public Health Accreditation Board

Performance Trends: CDC supports strong health departments, the Nation's front line of public health defense. Thousands of health departments serve Americans where they live, work, and play; every American receives and benefits from their services. CDC provides support and resources to state, tribal, local and territorial public health departments to improve the effectiveness, efficiency, and quality of their public health programs and services. As part of this effort, CDC assists health departments in meeting the nationally recognized, practice-focused and evidence-based standards of the Public Health Accreditation Board[207] (PHAB). Meeting these standards provides health departments with tools to advance the quality and performance of public health programs and services and establish the foundation to respond rapidly to emerging threats and challenges. CDC funds and supports the continuous improvement of the national accreditation program.

Accredited health departments now serve nearly 70% of the U.S. population as of December 2017. PHAB has accredited 278 health departments—31 state, 1 tribe, and 246 local health departments (including 179 individually accredited local health departments and 67 county health departments through a centralized state application). An additional 158 health departments have formally entered the accreditation process. Progress to date has exceeded FY 2017 projections for state and local public health agencies with 61% and 10.7%, respectively, of state and local agencies accredited as of December 2017 (Measures 11.B.4.1a-b).

More than 90% of accredited health departments report experiencing benefits such as stimulation of quality and performance improvement, increased accountability and transparency, and improved management processes. CDC and PHAB collaborated to publish a Morbidity and Mortality Weekly Report (MMWR)[208] to describe the impact of accreditation.

Many of the accredited and applicant health departments benefited from the investments made in 2010-2014 through CDC's National Public Health Improvement Initiative (NPHII). The NPHII awardees—and the local health departments that many NPHII-funded states supported—made significant progress toward meeting standards and applying for accreditation. These sites are now a large proportion of those being accredited or in the process. Seventy-eight percent of state awardees are either accredited or have applied. Also, PHAB and CDC data show that states that used NPHII funds to advance accreditation among local jurisdictions are the states with the most local health department accreditation activity. Results and awardee stories are highlighted in

[207]http://www.phaboard.org/about-phab/

[208]Evaluating the Impact of National Public Health Department Accreditation—United States, 2016 (MMWR, August 12, 2015/65(31);803-806)

Advancing Public Health: The Story of the National Public Health Improvement Initiative[209], released in July 2017 on CDC's website. The NPHII investments and the national accreditation standards reinforce the value of quality improvement, which can result in savings in time, saved or avoided costs, improvements in services and customer satisfaction, increased reach of services, and increased preventive behaviors by the public. Eighty-six percent of NPHII awardees reported concrete improvements in efficiency or effectiveness as a result of QI. Examples include:

- The Sexually Transmitted Disease Unit at the Michigan Department of Health and Human Services improve the unit's ability to locate clients with syphilis by 12%.
- In Tooele County, Utah, the percentage of tobacco vendors with a valid permit increased from 42% to 74% just 9 months after implementing a quality improvement solution.
- The Office of Vital Records at the Arizona Department of Health Services reduced the turnaround time for mail-in requests of vital records from 27 days to fewer than 7 days.
- The Puerto Rico Department of Health reduced the time taken to submit healthcare facility inspection reports from 5 months (150 days) to 14 days.

Since FY 2011, CDC's Accreditation Support Initiative (ASI) has provided funding and support to 268 local, tribal, and territorial health departments and state associations. ASI proves that even small amounts of funding can help health departments make major strides toward meeting standards and achieving accreditation. As of December 2017, 67% of the earliest two cohorts (2011-2013) of local health departments achieved accreditation and 64% of all local ASI awardees (2011-2017) formally entered the accreditation process. FY 2017 awards are in progress and CDC expects to fund 48 additional awardees.

In FY 2018 and FY 2019 CDC plans to continue funding ASI and other efforts that help health departments meet the national standards, with a special emphasis on reaching tribal, local (including small and rural), and territorial health departments. CDC also plans to continue funding improvements in the PHAB national accreditation program and the advancement of reaccreditation. Just as the public expects organizations such as schools and hospitals to be accredited, the national accreditation program for health departments is establishing growing expectations for health departments to meet national standards and become accredited.

Communications

Performance Measure for Long Term Objective: Improve access to and reach of CDC's scientific health information among key audiences to maximize health impact

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/-FY 2018
11.B.1.1c: Increase health behavior impact of CDC.gov (Outcome)	FY 2017: 91%[1] Target: 90% (Target Met)	90%	90%	Maintain

[1]Does not include individuals who responded "N/A".

Performance Trends: It is important that CDC's health information meets the needs of consumers or changes behavior. CDC uses American Customer Satisfaction Index (ACSI) scores to improve its web site and ensure that its audiences are satisfied with the usability of the site, credibility of the information, and functionality of the web tools (such as content syndication). In addition to tracking its overall performance, CDC surveys web users to understand how likely they are to change behavior based on information found on CDC.gov. In FY 2017, 91%

[209]https://www.cdc.gov/stltpublichealth/docs/nphii/Compendium.pdf

of visitors indicated positive health impact and behavior change after visiting CDC.gov, a one percentage point increase over FY 2016 and a more than 35% increase from FY 2010 (Measure 11.B.1.1c). CDC targets remain

PUBLIC HEALTH PREPAREDNESS AND RESPONSE

State and Local Preparedness and Response Capability

Performance Measures for Long Term Objective: Enhance and sustain preparedness and response capability across state, local, and territorial health departments

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
13.5.2: Increase the percentage of state public health laboratories that directly receive CDC Public Health Emergency Preparedness funding that can correctly subtype E. coli O157:H7 and submit the results into a national reporting system within four working days for 90% of the samples received[1] (Output)	FY 2015: 84% Target: 80% (Target Exceeded)	87%	87%	Maintain
13.5.3: Increase the percentage of public health agencies that directly receive CDC Public Health Emergency Preparedness funding that can convene, within 60 minutes of notification, a team of trained staff that can make decisions about appropriate response and interaction with partners (Outcome)	FY 2015: 100% Target: 95% (Target Exceeded)	96%	96%	Maintain

[1]CDC results are based on jurisdictions (N=18) that allocated PHEP funding for pulsed-field gel electrophoresis E.coli activities.

Performance Trends: CDC utilizes Public Health Emergency Preparedness (PHEP) awardee-reported data to aid jurisdictions in identifying preparedness gaps and developing targeted strategies to improve performance across operations. Measure 13.5.2 reflects the ability of states and select localities to detect and determine the extent and scope of potential outbreaks to minimize their impact. Rapid diagnostic testing and timely lab reporting allows for the swift removal of harmful products; decreasing cases of illness and consumers' exposure duration. *E. coli* remains a serious public health concern in the U.S. and testing performance is used as an indicator for other threats and a measure of awardee capability. In FY 2015, 84% of PHEP-funded public health laboratories correctly subtyped *E. coli* and submitted results to PulseNet within four working days (Measure 13.5.2). PulseNet is in the process of transitioning from Pulsed-field get electrophesis to Whole Genome Sequencing (WGS). Due to the transition, new targets cannot be set until data from the new method are reviewed and analyzed. All required labs are scheduled to be transitioned to WGS by the end of calendar year 2018. FY 2016-2019 targets remain conservative to account for this transition.

The ability to assemble key staff for timely decision-making and the establishment of effective incident management structures are essential components of a public health emergency response. In FY 2015, 100% of PHEP-funded public health agencies convened trained staff within 60 minutes of notification to make decisions regarding partner engagement and incident response (Measure 13.5.3), exceeding the FY 2015 target and representing an 11 percentage point increase from FY 2012. CDC will continue to work with awardees to improve results and achieve future targets. FY 2016 data for Measures 13.5.2 and 13.5.3 will updated in February 2018.

Performance Measures for Long Term Objective: Integrate and enhance existing surveillance systems at the local, state, national, and international levels to detect, monitor, report, and evaluate public health threats

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
13.1.3: Increase the number of Laboratory Response Network (LRN) member laboratories able to use their current Laboratory Information Management System (LIMS) for LRN-specific electronic data exchange (Output)	FY 2017: 46 Target: 52 (Target Not Met but Improved)	55	60	+5
13.1.1b: Increase the percentage of national Emergency Department visits captured in the syndromic surveillance platform to improve the representativeness of syndromic surveillance data (Output)[1]	FY 2017: 62% Target: 65% (Target Not Met but Improved)	60%[1]	65%	+5

[1]In 2017, CDC refined both the definition of an active facility (continuously and consistently transmitting ED visit data) and the method used to account for these in order to gain a more accurate measure of emergency department facilities providing data to the BioSense Platform. FY 2018 and 2019 targets were adjusted using the new definition.

Performance Trends: CDC continues to focus on steadily increasing the Laboratory Response Network[210] (LRN)-specific electronic data exchange capacity of member labs. In 2017, 46 out of 89 (52%) public health labs sent HL7 messages from their Laboratory Information Management Systems (LIMS) (Measure 13.1.3). This number is less than the FY 2017 target due to the interruption of LIMS integration while CDC makes critical updates to the requirements that labs follow to generate data and construct HL7 messages. CDC's LRN program is working to define a newer, smaller, streamlined data set that will significantly reduce the amount of labs required to report data and will make access easier for labs wanting to pursue an integrated solution of sharing LRN data with CDC. The benefits of this new process should be realized sometime in 2018.

In 2017, CDC expanded coverage beyond biological labs to also include chemical labs and currently has 10 LRN-chemical labs engaged in a pilot to implement HL7 messaging. CDC anticipates these labs to begin data exchange using HL7 messaging in 2018.

While 100% of LRN labs are capable of sending data through the LRN Results Messenger (RM), CDC encourages labs to send data directly from their day-to-day data systems to CDC's LRN Results Viewer database to take advantage of the benefits offered by interoperable approaches, such as a reduction in reporting burden.

CDC's National Syndromic Surveillance Program (NSSP)[211,212] is a partnership among local, state, and national public health programs supporting timely exchange of syndromic data and information at the jurisdiction level. Through a National Syndromic Surveillance Community of Practice[213] and the cloud-based BioSense Platform[214] that provides a suite of shared analytic tools and services, public health programs are now able to collectively investigate and coordinate responses to disease threats that cross jurisdictions. As an example, during the extensive 2017 hurricane season, NSSP quickly modified system capability to support data receipt, data quality assurance, and data input into the ESSENCE interface in direct support of HHS' Disaster Medical Assistance Teams (DMAT) deployed to impacted areas in Texas, Louisiana, Florida, the U.S. Virgin Islands, and Puerto

[210] http://www.bt.cdc.gov/lrn/
[211] http://www.cdc.gov/nssp/index.html
[212] As of FY 2015, the BioSense program is now referenced as the National Syndromic Surveillance Program
[213] http://www.phconnect.org
[214] https://www.cdc.gov/nssp/biosense/index.html

Rico. These data were available to the Assistant Secretary for Preparedness and Response (ASPR), the CDC Emergency Operations Center (CDC EOC), and local public health officials in the affected areas.

The DMAT data source is a valuable asset as it provides situational awareness of public health emergencies and disease management during the event in near real time. The efforts of the CDC NSSP to develop the capability to rapidly onboard DMAT data during the hurricane response ensures that DMAT data transmitted to the BioSense Platform in future DMAT deployments will be immediately available to NSSP partners at the federal, state, and local level.

Measure 13.1.1b reflects activities aimed at increasing the utility and value of the NSSP and its platform by increasing the representativeness of data captured within the platform. Representativeness measures the nationwide percentage of emergency department (ED) visits that are received on the BioSense Platform, and does not include the volume of inpatient, urgent care, and other outpatient visits that some facilities transmit along with the ED visits. As of October 2017, CDC receives approximate 62% of the nation's emergency department visits live on the BioSense Platform. In 2017, CDC refined both the definition of an active facility (continuously and consistently transmitting ED visit data) and the method used to account for these in order to gain a more accurate measure of emergency department facilities providing data to the BioSense Platform. Because of these changes, CDC did not meet the FY 2017 target and has adjusted the FY 2018 and FY 2019 targets accordingly.

Performance Measures for Long Term Objective: Enhance and sustain nationwide and international laboratory capacity to gather, ship, and screen and test samples for public health threats and to conduct research and development that lead to interventions for such threats

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
13.3.1: Sustain the percentage of Laboratory Response Network (LRN) laboratories that have demonstrated ability to rapidly detect select biological threat agents (Output)	FY 2017: 93% Target: 92% (Target Exceeded)	92%	92%	Maintain

Performance Trends: Laboratory Response Network (LRN) proficiency testing ensures laboratories within the network have the ability to rapidly identify biological threat agents. This includes performing LRN assays using agent-specific testing algorithms and available electronic resources to submit results. In FY 2017, CDC exceeded the expected target passing rate by one percent for LRN laboratories participating in proficiency testing (Measure 13.3.1). Future targets will remain fixed at 92% due to the increased complexity of proficiency testing protocols and the release of new assays, both of which are expected to challenge future pass rates.

Strategic National Stockpile

Performance Measures for Long-Term Objective: Assure an integrated, sustainable, nationwide response and recover capacity to limit morbidity and mortality from public health threats

Measure	Most Recent Result and Target	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
13.4.5: Number of trained and ready preparedness and response teams available for response to multiple events (Output)	FY 2017: 17 Target: 15 (Target Exceeded)	15	15	Maintain
13.4.6: Percentage of inventory accuracies attained by using quality inventory management systems (Outcome)	FY 2017: 98.39% Target: 97% (Target Exceeded)	97%	97%	Maintain

Performance Trends: CDC manages and distributes Strategic National Stockpile (SNS) medical countermeasures utilizing promising practices and innovative solutions. CDC continues to evaluate effective readiness measures to deploy subject matter experts for direct, on site medical logistics and supply chain management assistance during a public health emergency. Measure 13.4.5 represents the number of responder teams required to support maximum deployment and rest rotations for simultaneous responses in multiple jurisdictions across the country. CDC exceeded its FY 2017 target requirement of 15 responder teams by two teams. The result for this measure reflects the total number of teams that could be supplied by deployment-ready volunteers who have been medically cleared, trained, and evaluated to be capable of performing the assigned positions. As CDC evaluates alternative methods to measure the readiness of SNS staff to respond to emerging threats, the current target will be maintained through FY 2019.

Inventory accuracy is critical to CDC's ability to account for the $7 billion-worth of medical countermeasures stockpiled in the SNS. CDC exceeded its 97% physical inventory goal in FY 2017, with 98.39% of inventory counts that were proven accurate, and a total financial accuracy of 99.67%, representing a trend of exceeding its target at or above 97% since FY 2010 (Measure 13.4.6). Continued goals for 2018 include increased automation and reporting capabilities, reduced manual entries, and increased efficiency and productivity for system users. CDC will evaluate utility and system enhancement effectiveness through the implementation phase, and at the project’s completion in FY 2018.

WORKING CAPITAL FUND

Performance Measures for Working Capital Fund

Measure	Most Recent Result	FY 2018 Target	FY 2019 Target	FY 2019 +/- FY 2018
15.2.2: Maintain the percent of invoices paid on time (Efficiency)	FY 2017: 99.5% Target: 98% (Target Exceeded)	98%	98%	Maintain
15.5.1: Reduce the variance between annual revenues and annual costs (Efficiency)	FY 2017: 1% Target: 1% (Target Met)	3%	3%	Maintain
15.5.2: Reduce the variance between estimated and actual cost (Efficiency)	FY 2017: 0.6% Target: 2% (Target Exceeded)	2%	1%	-1
15.5.3 Decrease the percent of bills that require correction (Efficiency)	FY 2017: 8.8% Target: 10% (Target Exceeded)	10%	5%	-5

Performance Trends: CDC's Office of the Chief Operating Officer actively supports CDC's goals and customers through fiscal stewardship and financial strategy by providing financial services, budgetary and legislative guidance, and quality assurance. CDC has secured an unqualified audit opinion on the agency's financial statements each year since FY 1999.

The Office of Management and Budget's Prompt Payment rule requires federal agencies to pay vendors in a timely manner and assesses late interest penalties against agencies that pay vendors after a payment due date. CDC has maintained a 99% prompt payment level since FY 2013 (Measure 15.2.2).

CDC's Working Capital Fund (WCF) aims to achieve greater efficiency and transparency in the provision of Agency-wide business services. Currently, CDC estimates costs for business services 18 months prior to final fiscal year obligations being made. CDC initially established targets to align with its baseline of 1% from the first year of operating the WCF, however, data over the next few years of operations have shown that the 2014 result was an outlier and not an appropriate target. The target for Measure 15.5.1 has been adjusted to better reflect what is currently achievable. CDC will reevaluate the target when at least five years of data are available to establish a trend.

In measuring performance from a Center, Institute, Office (CIO) perspective in FY 2017, the original cost estimate varied 0.6% from the actual costs charged (Measure 15.5.2). In FY 2017, CDC exceeded the target for this performance measure, as in FY 2016, and suggests lowering the target to 1%. Due to continued process improvements, CDC also exceeded the target of 10% of monthly bills requiring correction in FY 2017. As a result, CDC proposes reducing the FY 2019 target to 5% (Measure 15.5.3).

FY 2019 DISCONTINUED MEASURES TABLE

Measure ID 1.3.2b: Increase the percentage of pneumococcal vaccination among non-institutionalized high-risk adults ages 18-64 (Outcome)

FY	Target	Result
2019	Discontinued	N/A
2018	48%	N/A
2017	45%	N/A
2016	42%	N/A
2015	39%	23% (Target Not Met)
2014	36%	29% (Target Not Met)
2013	34%	31% (Target Not Met but Improved)

CDC seeks to retire and replace measure 1.3.2.b with a similar measure that reflects changes within programmatic focus or methodology for collecting/reporting data. The new measure better reflects the latest Advisory Committee on Immunization Practices (ACIP) recommendations for adults at increased risk of pneumococcal disease to receive two doses of vaccine.

Measure ID 2.2.6: Reduce the number of new AIDS cases among adults and adolescents per 100,000 population (Outcome)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	N/A
2017	9.3	N/A
2016	9.6	6.9 (Target Exceeded)
2015	9.9	6.8 (Target Exceeded)[2]
2014	10.1[1]	7.3 (Target Exceeded)[3]

[1]Reflects preliminary data and includes diagnoses reported to CDC within 6 months of the diagnosis year.

[2]Beginning with the 2015 HIV Surveillance Report, diagnosis, death, and prevalence data are presented without statistical adjustments for delays in reporting to CDC; therefore, adjusted targets and results have been provided in this table.

[3]Beginning with the 2015 HIV Surveillance Report, diagnosis, death, and prevalence data are presented without statistical adjustments for delays in reporting to CDC; therefore, adjusted targets and results have been provided in this table.

Measure 2.2.6 is being retired as CDC focuses more on the earlier stages of HIV. AIDS is a less meaningful measurement due to the length of time for HIV to advance to AIDS. AIDS measurements provide more information about what has happened in the past instead of more relevant, current information.

Measure ID 4.6.6: Reduce the annual increase in the proportion of high school students who currently use e-cigarettes (past 30 days) (Intermediate outcome)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	Jun 30, 2019
2017	0%	Jun 30, 2018

FY	Target	Result
2016	N/A	4.7% (Historical Actual)
2015	N/A	2.6% (Historical Actual)
2014	N/A	8.9% (Historical Actual)

Nearly all tobacco use begins during youth and young adulthood, and use of tobacco products in any form is unsafe. Measure 4.6.6 and 4.6.7 are being retired because updates to measure 4.6.5 (reduce the proportion of adolescents grades 6 through 12 who are current users of any tobacco product) captures information about all adolescent tobacco use, including e-cigarettes.

Measure ID 4.6.7: Reduce the annual increase in the proportion of middle school students who currently use e-cigarettes (past 30 days) (Intermediate outcome)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	Jun 30, 2019
2017	0%	Jun 30, 2018
2016	N/A	1.0% (Historical Actual)
2015	N/A	1.4% (Historical Actual)
2014	N/A	2.8% (Historical Actual)

Nearly all tobacco use begins during youth and young adulthood, and use of tobacco products in any form is unsafe. Measures 4.6.6 and 4.6.7 are being retired because updates to measure 4.6.5 (reduce the proportion of adolescents grades 6 through 12 who are current users of any tobacco product) captures information about all adolescent tobacco use, including e-cigarettes.

Measure ID 4.C: Number of calls received by Tobacco Cessation Quitlines (1-800-QUITNOW) (Output)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	N/A
2017	1,500,000	Mar 31, 2018
2016	1,500,000	1,188,366 (Target Not Met)
2015	1,500,000	1,189,112 (Target Not Met)
2014	1,500,000	1,302,054 (Target Not Met)

State quitlines are increasingly offering a variety of channels for accessing cessation services, including web and mobile services, and some smokers are likely using these alternatives instead of calling quitlines. Measures 4.C and 4.D are being replaced by a measure that more accurately reflects total quit successes nationally, regardless of the quit method used, and better addresses the diversity of efforts being undertaken by CDC to achieve cessation among the general public.

Measure ID 4.D: Number of persons provided cessation counseling and/or medications by Tobacco Cessation Quitlines (Output)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	N/A
2017	499,500	Mar 31, 2018
2016	499,500	386,391 (Target Not Met)
2015	499,500	342,179 (Target Not Met)
2014	499,500	412,331 (Target Not Met)

State quitlines are increasingly offering a variety of channels for accessing cessation services, including web and mobile services, and some smokers are likely using these alternatives instead of calling quitlines. Measures 4.C and 4.D are being replaced by a measure that more accurately reflects total quit successes nationally, regardless of the quit method used, and better addresses the diversity of efforts being undertaken by CDC to achieve cessation among the general public.

Measure ID 4.11.3a: increase the age-adjusted prevalence of US diabetic adults meeting all four of the recommended ABCs (cases per 1,000 per year) (Outcome)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	N/A
2017	24	N/A
2016	N/A	N/A
2015	N/A	N/A
2014	N/A	Jun 1, 2018

There have been challenges in getting data for Measure 4.11.3a's smoking cessation (serum continine) component from the National Health and Nutrition Examination Survey (NHANES). This irregularity in the smoking cessation (serum continine) data has led to an inability to provide a complete and updated analysis. This measure is also a former indicator for the state diabetes programs. With a shift in the programmatic focus, this measure is no longer being tracked, and this measure will be retired.

Measure ID 4.8.4: Increase the number of reporting areas that provide optimal data for assessing safe sleep practices using the Pregnancy Risk Assessment Monitoring System (PRAMS) (Intermediate outcome)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	N/A
2017	44	51 (Target Exceeded)
2016	41	40 (Target Not Met but Improved)
2015	21	17 (Target Not Met)
2014	19	17 (Target Not Met)

When this measure was initially introduced, questions about safe sleep were optional in the Pregnancy Risk Assessment Monitoring System (PRAMS). More recently, the questions have become part of the core of PRAMS

and are asked in every state that participates in PRAMS (47 states and 4 jurisdictions). Because there will be no further change in outcome, Measure 4.8.4 is being retired.

Measure ID 4.8.6: Increase the percentage of women at risk for unintended pregnancy who report using long-acting reversible contraception (Outcome)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	N/A
2017	15 %	Dec 31, 2018
2015	11 %	11.9 % (Target Exceeded)

Due to a number of factors, including progress in increasing access to long acting reversible contraception (LARC), feedback and concerns raised by partners about CDC setting a target specific to LARC, and overall changes to the focus of our work to promote Safe Motherhood, the focus of CDC's work has shifted away from a specific emphasis on LARC, so Measure 4.8.6 is being retired.

Measure ID 4.11.1: Reduce the age-adjusted percentage of adults (age 18+) diagnosed with arthritis that are physically inactive in states funded by the CDC Arthritis Program (Outcome)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	N/A
2017	27.3 %	Aug 31, 2018
2016	27.8 %	28.8% (Target Not Met but Improved)
2015	27.8 %	29.6 % (Target Not Met)
2014	N/A	29.4 % (Historical Actual)

Measure 4.11.1 is being retired because it is not aligned with current programmatic activities. This measure is not reflective of the current health status of the population because funding is insufficient in grantee states to impact physical activity level change on a large, statewide measure related to inactivity. In addition, there will be a new cohort of grantees in FY 2018 which may not be comparable to the previous cohort.

Measure ID 8.B.2.5: Increase access to and awareness of the Guide to Community Preventive Services, and Task Force findings and recommendations, using page views as proxy for use[1] (Outcome)

FY	Target	Result
2019	Discontinued	N/A
2018	1,250,585	N/A
2017	1,420,000	1,901,432 (Target Exceeded)
2016	1,420,000	1,250,585 (Target Not Met)
2015	1,400,000	1,301,832 (Target Not Met)
2014	1,400,000	1,339,561 (Target Not Met)

FY	Target	Result
2013	1,032,147	1,359,772 (Target Exceeded)

[1]Targets and results reflect PPHF funding.

The Community Guide measure is being retired because page views are no longer an appropriate proxy for use of Task Force findings and recommendations. The new Community Guide website system allows users to more efficiently locate information based on the user's profile and pattern of use, making page views a less relevant indicator.

8.B.4.3 Increase the number of new CDC trainees who join public health fellowship programs in epidemiology, preventive medicine, public health leadership and management, informatics, or prevention effectiveness, and participate in training at federal, state, tribal, local, and territorial public health agencies. (Output)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	N/A
2017	285[215]	283 (Target Not Met)
2016	359	297 (Target Not Met but Improved)
2015	266	256 (Target Not Met but Improved)
2014	212	98 (Target Not Met)
2013	176	266 (Target Exceeded)

This measure is no longer useful to determine if new trainees who join public health fellowship programs are the right fit to fulfill these rolls in the public health workforce. CDC is retiring this measure and replacing it with a measure that looks to enhance the competency and knowledge of the public health workforce to ensure they have the right skills.

Measure ID 10.A.1.6: Increase the number of HIV+ pregnant women receiving antiretroviral medications, to reduce mother-to-child HIV transmission (Output)

FY	Target	Result
2019	Discontinued	N/A
2018	N/A	N/A
2017	410,000	Dec 31, 2018
2016	425,000	410,760 (Target Not Met)
2015	464,700	424,600 (Target Not Met)
2014	467,599	437,900 (Target Not Met but Improved)
2013	425,673	432,241 (Target Exceeded)

With the introduction or transition to Test and Start and pre-exposure prophylaxis in certain countries, more women will enter pregnancy already on antiretroviral treatment. Additionally, there will be fewer women who are primarily enrolled at antenatal clinic sites.

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SUPPLEMENTAL TABLES

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OBJECT CLASS TABLE – DIRECT[1,2,3,4]

(dollars in thousands)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 +/- FY 2018
Personnel Compensation:				
Full-Time Permanent(11.1)	$775,013	$767,225	$773,986	$6,761
Other than Full-Time Permanent (11.3)	$99,494	$98,494	$99,362	$868
Other Personnel Comp. (11.5)	$35,943	$35,582	$35,895	$314
Military Personnel (11.7)	$73,954	$73,210	$74,391	$1,181
Special Personal Service Comp. (11.8)	$7,707	$7,630	$7,697	$67
Total Personnel Compensation	**$992,111**	**$982,141**	**$991,332**	**$9,190**
Civilian personnel Benefits (12.1)	$298,036	$295,041	$297,641	$2,600
Military Personnel Benefits (12.2)	$49,192	$48,698	$49,483	$785
Benefits to Former Personnel (13.0)	$404	$400	$404	$4
Subtotal Pay Costs	**$1,339,744**	**$1,326,280**	**$1,338,859**	**$12,579**
Travel (21.0)	$40,940	$40,528	$42,150	$1,621
Transportation of Things (22.0)	$14,266	$14,123	$14,687	$565
Rental Payments to GSA (23.1)	$25,811	$25,552	$26,063	$511
Rental Payments to Others (23.2)	$669	$662	$689	$26
Communications, Utilities, and Misc. Charges (23.3)	$33,701	$33,362	$34,697	$1,334
NTWK Use Data TRANSM SVC (23.8)	$8	$8	$8	$0
Printing and Reproduction (24.0)	$2,703	$2,676	$2,783	$107
Other Contractual Services (25):	$1,395,331	$1,381,308	$1,425,561	$44,252
Advisory and Assistance Services (25.1)	$674,583	$667,804	$689,198	$21,394
Other Services (25.2)	$222,380	$220,145	$227,198	$7,053
Purchases from Government Accounts (25.3)	$314,592	$311,430	$321,407	$9,977
Operation and Maintenance of Facilities (25.4)	$29,950	$29,649	$30,599	$950
Research and Development Contracts (25.5)	$25,772	$25,513	$26,330	$817
Medical Services (25.6)	$38,760	$38,371	$39,600	$1,229
Operation and Maintenance of Equipment (25.7)	$84,916	$84,063	$86,756	$2,693
Subsistence and Support of Persons (25.8)	$9	$9	$10	$0.30
Consultants, other and misc (25.9)	$4,368	$4,324	$4,463	$139
Supplies and Materials (26.0)	$433,771	$429,412	$445,300	$15,888
Equipment (31.0)	$63,117	$62,482	$64,982	$2,499
Land and Structures (32.0)	$6,780	$6,712	$6,712	$0
Investments and Loans (33.0)	$0	$0	$0	$0
Grants, Subsidies, and Contributions (41.0)	$2,921,508	$2,892,149	$2,121,698	-$770,451
Insurance Claims and Indemnities (42.0)	$722	$715	$715	$0
Interest and Dividends (43.0)	$33	$33	$33	$0
Refunds (44.0)	$0	$0	$0	$0
Subtotal Non-Pay Costs	**$4,939,359**	**$4,889,722**	**$4,186,076**	**-$703,646**
Total Budget Authority[1]	**$6,279,103**	**$6,216,002**	**$5,524,935**	**-$691,067**
Average Cost per FTE				
Civilian FTEs	**9,114**	**8,620**	**7,520**	**-1,100**
Civilian Average Salary and Benefits	$133	$140	$162	$22
Percent change	N/A	5%	16%	11%
Military FTEs	**882**	**788**	**694**	**-94**
Military Average Salary and Benefits	$140	$155	$178	$24
Percent change	N/A	11%	15%	5%
Total FTEs[4]	**9,996**	**9,408**	**8,214**	**-1,194**
Average Salary and Benefits	$134	$141	$163	$2
Percent change	N/A	5%	16%	10%

[1] FY 2017 totals include funding for Flint, Michigan response, which includes $15 million for Lead Prevention (available through FY 2018) and $20 million for a Lead Exposure Registry and Advisory Council (available through FY 2020).

[2] FY 2019 FTE estimates have been adjusted to reflect: 1) World Trade Center Health Program FTEs only and 2) the movement of both the Occupational Safety and Health and Energy Employees Occupational Illness Compensation Program Act (EEOICPA) outside of CDC.
[3] FY 2019 FTE estimates may be further adjusted based on proposed funding level as CDC develops a plan to implement proposed policy requirements.
[4] FTE displayed reflect updated estimated levels for FY 2017, FY 2018, and FY 2019.

OBJECT CLASS TABLE – REIMBURSABLE[1]

Object Class	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Personnel Compensation:			
Full-Time Permanent(11.1)	$27,095	$37,868	$37,868
Other than Full-Time Permanent (11.3)	$11,997	$16,767	$16,767
Other Personnel Comp. (11.5)	$3,213	$4,490	$4,490
Military Personnel (11.7)	$6,509	$9,097	$9,097
Special Personal Service Comp. (11.8)	$654	$915	$915
Total Personnel Compensation	**$49,468**	**$69,136**	**$69,136**
Civilian Personnel Benefits (12.1)	$13,778	$19,257	$19,257
Military Personnel Benefits (12.2)	$4,722	$6,600	$6,600
Benefits to Former Personnel (13.0)	$0	$0	$0
Subtotal Pay Costs	**$67,968**	**$94,993**	**$94,993**
Travel (21.0)	$10,745	$15,017	$15,017
Transportation of Things (22.0)	$2,724	$3,807	$3,807
Rental Payments to GSA (23.1)	$1,079	$1,508	$1,508
Rental Payments to Others (23.2)	$114	$160	$160
Communications, Utilities, and Misc. Charges (23.3)	$913	$1,276	$1,276
Printing and Reproduction (24.0)	$164	$229	$229
Other Contractual Services (25):			
Advisory and Assistance Services (25.1)	$69,035	$96,483	$96,483
Other Services (25.2)	$8,993	$12,568	$12,568
Purchases from Government Accounts (25.3)	$43,626	$60,972	$60,972
Operation and Maintenance of Facilities (25.4)	$151	$212	$212
Research and Development Contracts (25.5)	$428	$598	$598
Medical Services (25.6)	$3,091	$4,321	$4,321
Operation and Maintenance of Equipment (25.7)	$6,121	$8,555	$8,555
Subsistence and Support of Persons (25.8)	$0	$0	$0
Consultants, other and misc (25.9)	$816	$1,140	$1,140
Subtotal Other Contractual Services	**$132,261**	**$184,849**	**$184,849**
Supplies and Materials (26.0)	$34,275	$47,903	$47,903
Equipment (31.0)	$4,285	$5,988	$5,988
Land and Structures (32.0)	$0	$0	$0
Investments and Loans (33.0)	$0	$0	$0
Grants, Subsidies, and Contributions (41.0)	$24,113	$33,701	$33,701
Insurance Claims and Indemnities (42.0)	$16,227	$22,679	$22,679
Interest and Dividends (43.0)	$0	$0	$0
Refunds (44.0)	$0	$0	$0
Subtotal Non-Pay Costs	**$226,900**	**$317,116**	**$317,116**
Total Budget Authority	**$294,869**	**$412,109**	**$412,109**
Reimbursable FTEs	1,481	1,435	1,435
Military FTEs	42	37	37
Total FTEs[1]	**1,523**	**1,472**	**1,472**

[1] FTE displayed reflect updated estimated levels for FY 2017, FY 2018, and FY 2019.

OBJECT CLASS TABLE – PREVENTION AND PUBLIC HEALTH FUND[1,2,3]

(dollars in thousands)	FY 2017 Final	FY 2018 Annualized CR†	FY 2019 President's Budget	FY 2019 PB +/- FY 2018
Personnel Compensation:				
Full-Time Permanent(11.1)	$32,756	$29,575	$0	-$29,575
Other than Full-Time Permanent (11.3)	$2,704	$2,442	$0	-$2,442
Other Personnel Comp. (11.5)	$1,277	$1,153	$0	-$1,153
Military Personnel (11.7)	$2,222	$2,007	$0	-$2,007
Special Personal Service Comp. (11.8)	$8	$8	$0	-$8
Total Personnel Compensation	**$38,968**	**$35,184**	**$0**	**-$35,184**
Civilian personnel Benefits (12.1)	$11,835	$10,686	$0	-$10,686
Military Personnel Benefits (12.2)	$1,054	$952	$0	-$952
Benefits to Former Personnel (13.0)	$0	$0	$0	$0
Subtotal Pay Costs	**$51,858**	**$46,823**	**$0**	**-$46,823**
Travel (21.0)	$1,257	$1,135	$0	-$1,135
Transportation of Things (22.0)	$177	$159	$0	-$159
Rental Payments to GSA (23.1)	$1,195	$1,079	$0	-$1,079
Rental Payments to Others (23.2)	$11	$10	$0	-$10
Communications, Utilities, and Misc. Charges (23.3)	$887	$801	$0	-$801
NTWK Use Data TRANSM SVC (23.8)	$0	$0	$0	$0
Printing and Reproduction (24.0)	$19	$17	$0	-$17
Other Contractual Services (25):	$142,650	$128,799	$0	-$128,799
Advisory and Assistance Services (25.1)	$110,607	$99,867	$0	-$99,867
Other Services (25.2)	$4,210	$3,801	$0	-$3,801
Purchases from Government Accounts (25.3)	$25,171	$22,727	$0	-$22,727
Operation and Maintenance of Facilities (25.4)	$362	$327	$0	-$327
Research and Development Contracts (25.5)	$63	$57	$0	-$57
Medical Services (25.6)	$10	$9	$0	-$9
Operation and Maintenance of Equipment (25.7)	$2,154	$1,945	$0	-$1,945
Subsistence and Support of Persons (25.8)	$0	$0	$0	$0
Consultants, other and misc (25.9)	$73	$66	$0	-$66
Supplies and Materials (26.0)	$46,169	$41,686	$0	-$41,686
Equipment (31.0)	$476	$430	$0	-$430
Land and Structures (32.0)	$299	$270	$0	-$270
Investments and Loans (33.0)	$0	$0	$0	$0
Grants, Subsidies, and Contributions (41.0)	$646,296	$583,540	$0	-$583,540
Insurance Claims and Indemnities (42.0)	$5	$5	$0	-$5
Interest and Dividends (43.0)	$2	$2	$0	-$2
Refunds (44.0)	$0	$0	$0	$0
Subtotal Non-Pay Costs	**$839,442**	**$757,932**	**$0**	**-$757,932**
Total Budget Authority[2]	**$891,300**	**$804,755**	**$0**	**-$804,755**
Average Cost per FTE				
Civilian FTEs	**230**	**230**	**0**	**-230**
Civilian Average Salary and Benefits	$211	$191	$0	-$191
Percent change	N/A	-10%	N/A	N/A
Military FTEs	**20**	**20**	**0**	**-20**
Military Average Salary and Benefits	$164	$148	$0	-$148
Percent change	N/A	-10%	N/A	N/A
Total FTEs	**250**	**250**	**0**	**-250**
Average Salary and Benefits	**$207**	**$187**	**$0**	**-$187**
Percent change	**N/A**	-10%	N/A	N/A

†Source of funds displayed consistent with prior year presentations and the assumptions for the FY 2019 Budget.

[1] PPHF FTEs based on direct hire estimates [2] PPHF Civilian Avg. Salary only includes partial compensation

[3] FTE displayed reflect updated estimated levels for FY 2017, FY 2018, and FY 2019.

SALARIES AND EXPENSES[1,2,3]

(dollars in thousands)	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 +/- FY 2018
Personnel Compensation:				
Full-Time Permanent(11.1)	$775,013	$767,225	$773,986	$6,761
Other than Full-Time Permanent (11.3)	$99,494	$98,494	$99,362	$868
Other Personnel Comp. (11.5)	$35,943	$35,582	$35,895	$314
Military Personnel (11.7)	$73,954	$73,210	$74,391	$1,181
Special Personal Service Comp. (11.8)	$7,707	$7,630	$7,697	$67
Total Personnel Compensation	**$992,111**	**$982,141**	**$991,332**	**$9,190**
Civilian personnel Benefits (12.1)	$298,036	$295,041	$297,641	$2,600
Military Personnel Benefits (12.2)	$49,192	$48,698	$49,483	$785
Benefits to Former Personnel (13.0)	$404	$400	$404	$4
Subtotal Pay Costs	**$1,339,744**	**$1,326,280**	**$1,338,859**	**$12,579**
Travel (21.0)	$40,940	$40,528	$42,150	$1,621
Transportation of Things (22.0)	$14,266	$14,123	$14,687	$565
Rental Payments to Others (23.2)	$669	$662	$689	$26
Communications, Utilities, and Misc. Charges (23.3)	$33,701	$33,362	$34,697	$1,334
Printing and Reproduction (24.0)	$2,703	$2,676	$2,783	$107
Other Contractual Services (25):	$1,390,962	$1,376,984	$1,421,098	$44,114
Advisory and Assistance Services (25.1)	$674,583	$667,804	$689,198	$21,394
Other Services (25.2)	$222,380	$220,145	$227,198	$7,053
Purchases from Government Accounts (25.3)	$314,592	$311,430	$321,407	$9,977
Operation and Maintenance of Facilities (25.4)	$29,950	$29,649	$30,599	$950
Research and Development Contracts (25.5)	$25,772	$25,513	$26,330	$817
Medical Services (25.6)	$38,760	$38,371	$39,600	$1,229
Operation and Maintenance of Equipment (25.7)	$84,916	$84,063	$86,756	$2,693
Subsistence and Support of Persons (25.8)	$9	$9	$10	$0.30
Supplies and Materials (26.0)	$433,771	$429,412	$445,300	$15,888
Subtotal Non-Pay Costs	**$1,917,012**	**$1,897,747**	**$1,961,404**	**$63,656**
Rental Payments to GSA (23.1)	$25,811	$25,552	$26,063	$511
Total, Salaries & Expenses and Rent	**$3,282,567**	**$3,249,579**	**$3,326,326**	**$76,746**
Direct FTE[3]	**9,996**	**9,408**	**8,214**	**-1,194**

1 FY 2019 FTE estimates have been adjusted to reflect: 1) World Trade Center Health Program FTEs only and 2) the movement of both the Occupational Safety and Health and Energy Employees Occupational Illness Compensation Program Act (EEOICPA) outside of CDC.

[2] FY 2019 FTE estimates may be further adjusted based on proposed funding level as CDC develops a plan to implement proposed policy requirements.

[3] FTE displayed reflect updated estimated levels for FY 2017, FY 2018, and FY 2019.

DETAIL OF FULL-TIME EQUIVALENT EMPLOYMENT (FTE)[1,2,3,4]

	FY 2017			FY 2018			FY 2019		
	Civilian	CC	Total	Civilian	CC	Total	Civilian	CC	Total
Immunization and Respiratory Diseases	**595**	**59**	**654**	**560**	**54**	**614**	**560**	**54**	**614**
Direct	595	59	654	560	54	614	560	54	614
Reimbursable	-	-	-	-	-	-	-	-	-
HIV/AIDS, Viral Hepatitis, STI and TB Prev.	**1,004**	**79**	**1,083**	**954**	**69**	**1,023**	**916**	**67**	**983**
Direct	1,004	79	1,083	954	69	1,023	916	67	983
Reimbursable	-	-	-	-	-	-	-	-	-
Emerging and Zoonotic Infectious Diseases	**1,111**	**134**	**1,245**	**1,106**	**124**	**1,230**	**1,106**	**124**	**1,230**
Direct	1,098	133	1,231	1,093	123	1,216	1,093	123	1,216
Reimbursable	13	1	14	13	1	14	13	1	14
Chronic Disease Prevention and Health Promotion	**767**	**69**	**836**	**649**	**50**	**699**	**649**	**50**	**699**
Direct	758	68	826	640	49	689	640	49	689
Reimbursable	9	1	10	9	1	10	9	1	10
Birth Defects, Developmental Disabilities, Disability and Health	**177**	**9**	**186**	**140**	**3**	**143**	**140**	**3**	**143**
Direct	177	9	186	140	3	143	140	3	143
Reimbursable	-	-	-	-	-	-	-	-	-
Environmental Health	**417**	**36**	**453**	**387**	**27**	**414**	**377**	**27**	**404**
Direct	373	34	407	343	25	368	333	25	358
Reimbursable	44	2	46	44	2	46	44	2	46
Injury Prevention and Control	**274**	**22**	**296**	**274**	**22**	**296**	**274**	**22**	**296**
Direct	273	22	295	273	22	295	273	22	295
Reimbursable	1	-	1	1	-	1	1	-	1
Public Health Scientific Services	**1,370**	**105**	**1,475**	**1,270**	**90**	**1,360**	**1,214**	**86**	**1,300**
Direct	1,315	105	1,420	1,215	90	1,305	1,159	86	1,245
Reimbursable	55	-	55	55	-	55	55	-	55
Occupational Safety and Health[3]	**1,016**	**97**	**1,113**	**1,026**	**91**	**1,117**	**42**	**3**	**45**
Direct	1,014	97	1,111	1,025	91	1,116	41	3	44
Reimbursable	2	-	2	1	-	1	1	-	1
Global Health	**1,170**	**181**	**1,351**	**1,099**	**177**	**1,276**	**1,099**	**177**	**1,276**
Direct	1,090	165	1,255	1,019	161	1,180	1,019	161	1,180
Reimbursable	80	16	96	80	16	96	80	16	96
Public Health Preparedness and Response	**580**	**78**	**658**	**570**	**78**	**648**	**558**	**78**	**636**
Direct	579	78	657	569	78	647	557	78	635
Reimbursable	1	-	1	1	-	1	1	-	1
Cross-Cutting Activities and Program Support	**2,114**	**55**	**2,169**	**2,019**	**40**	**2,059**	**2,019**	**40**	**2,059**
Direct - BA	838	33	871	789	23	812	789	23	812
Reimbursable - WCF	1,276	22	1,298	1,230	17	1,247	1,230	17	1,247
CDC Total	**10,595**	**924**	**11,519**	**10,054**	**825**	**10,879**	**8,954**	**731**	**9,685**
CDC Direct Total	9,114	882	9,996	8,620	788	9,408	7,520	694	8,214
CDC Reimbursable Total	1,481	42	1,523	1,434	37	1,471	1,434	37	1,471

[1] CDC FTE only. Excludes ATSDR.

[2] FY 2019 FTE estimates for Occupational Safety and Health have been adjusted to reflect: 1) World Trade Center Health Program FTEs only and 2) the movement of both the Occupational Safety and Health and Energy Employees Occupational Illness Compensation Program Act (EEOICPA) outside of CDC.

[3] FY 2019 FTE estimates may be further adjusted based on proposed funding level as CDC develops a plan to implement proposed policy requirements.

[4] FTE displayed reflect updated estimated levels for FY 2017, FY 2018, and FY 2019.

DETAIL OF POSITIONS[1,2,3,4]

	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Executive Level[4]			
Executive level I			
Executive level II			
Executive level III			
Executive level IV			
Executive level V			
Subtotal			
Total-Executive Level Salary	**N/A**	**N/A**	**N/A**
ES-6[4]			
ES-5			
ES-4			
ES-3			
ES-2			
ES-1			
Total - SES	**33**	**30**	**28**
Total - SES Salary	**$5,439,105**	**$5,106,853**	**$5,104,899**
GS Level			
GS-15	758	735	717
GS-14	2,083	2,003	2,000
GS-13	3,157	3,021	2,982
GS-12	1,681	1,607	1,578
GS-11	874	801	797
GS-10	41	39	39
GS-9	524	517	513
GS-8	56	52	47
GS-7	435	423	347
GS-6	53	47	46
GS-5	236	142	140
GS-4	26	9	6
GS-3	5	3	3
GS-2	3	0	0
GS-1	0	0	0
Subtotal	**9,932**	**9,399**	**9,215**
Total - GS Salary	**$934,601,400**	**$940,359,194**	**$990,490,325**
Average ES level			
Average ES salary			
Average GS grade	12.0	12.0	12.0
Average GS salary	$94,100	$100,049	$104,489
Average Special Pay Categories			
Average Comm. Corps Salary	$93,210	$99,055	$103,622
Average Wage Grade Salary	$57,956	$62,678	$63,664

[1] Includes special pays and allowances

[2] Totals do not include reimbursable FTEs

[3] This table reflects "positions" not full-time equivalent(s) (FTEs)

[4] Executive level data not available

PROGRAMS PROPOSED FOR ELIMINATION

The following table lists the programs proposed for elimination in the President's FY 2019 Budget request. Following the table is a brief summary of each program and the rationale for its elimination.

Program	FY 2018 Annualized CR Level (in millions)
Preventive Health and Health Services Block Grant	$144.5
Racial and Ethnic Approaches to Community Health	$46.0
Prevention Research Centers	$25.3
Amyotrophic Lateral Sclerosis Registry	$10.0
Climate and Health	$10.0
Injury Control Research Centers	$9.0
Academic Centers for Public Health Preparedness	$8.1
Hospitals Promoting Breastfeeding	$7.2
Prion Disease	$6.0
Chronic Fatigue Syndrome	$5.4
National Early Child Care Collaboratives	$3.6
Million Hearts	$3.6
Elderly Falls	$2.0
Total Reduction Amount	**$280.7**

Preventive Health and Health Services Block Grant (-$144.5 million)

The FY 2019 Budget eliminates funding for the Preventive Health and Health Services Block Grant (PHHSBG). When the PHHSBG was first authorized in 1981, there were minimal resources within CDC's budget allocated for categorical programs such as heart disease, diabetes, immunizations, and obesity, and many states did not receive funding from CDC to support prevention of chronic disease. The Budget continues the proposal of the new five-year block grant program, *America's Health*, which will provide flexibility to grantees and focus on the leading public health challenges faced by states, tribes, localities, and territories.

Racial and Ethnic Approaches to Community Health (-$46.0 million)

The FY 2019 Budget eliminates funding for the Racial and Ethnic Approaches to Community Health (REACH) program. The FY 2019 Budget integrates existing disease-based activities into a new Block Grant to increase flexibility to States and Tribes to more efficiently and effectively address the leading causes of death and disability specific to each State. State, local, or tribal recipients of the *America's Health* Block Grant will continue work on the leading causes of death and disability in these communities.

Prevention Research Centers (-$25.3 million)

The FY 2019 Budget eliminates funding for the Prevention Research Centers (PRCs), which works with academic institutions to conduct research and disseminate prevention interventions across the United States. In FY 2017, CDC funded PRCs at 26 universities in 24 states to study how individuals and communities can avoid or counter the risks for chronic illnesses. The National Institutes of Health (NIH) also supports research on chronic diseases, including prevention research. CDC's chronic disease prevention portfolio will continue to focus on implementation of the most effective existing interventions.

Amyotrophic Lateral Sclerosis Registry (-$10.0 million)

The FY 2019 Budget eliminates the Amyotrophic Lateral Sclerosis (ALS) registry and the related research program. NIH-funded research on ALS will continue. External researchers may still use biospecimens previously obtained from the ALS biorepository. The Budget would eliminate funding for extramural researcher-initiated studies to explore the causes of ALS and potential risk factors and the registry.

Climate and Health (-$10.0 million)

Elimination of the Climate and Health program would end direct funding to states regarding health effects of climate change. States will continue to have access to other funds that would allow them to prepare and respond to public health emergencies, including natural disasters and adverse weather events. The Budget would eliminate funding for 18 state and local health departments and six tribal and territorial organizations.

Injury Control Research Centers (-$9.0 million)

The FY 2019 Budget eliminates funding for the Injury Control Research Centers (ICRCs). CDC supported 10 ICRCs to conduct research and evaluation activities related to the health and economic impact of injury and violence as well as the improvement of injury prevention practices. Elimination of this program prioritizes funding for CDC's broader injury prevention and control portfolio.

Academic Centers for Public Health Preparedness (-$8.1 million)

The FY 2019 Budget eliminates funding for the Academic Centers for Public Health Preparedness. CDC will work with awardees to prioritize preparedness activities, while also maintaining support for research and training for public health preparedness through the public health preparedness and response research agenda. CDC will also continue to support evaluation of awardee activities and assessments such as the Operational Readiness Review and will use these analyses to inform training and guidance to the public health preparedness field.

Hospitals Promoting Breastfeeding (-$7.2 million)

The FY 2019 Budget eliminates dedicated funding for the Hospitals Promoting Breastfeeding program. This program was created in FY 2012, funded by the Prevention and Public Health Fund. This program promotes and supports evidence-based strategies in states, communities, and hospitals to help women who choose to breastfeed to start and continue breastfeeding. State, local, or tribal recipients of the *America's Health* Block Grant could continue to promote breastfeeding as a way to prevent obesity and type 2 diabetes.

Prion Disease (-$6.0 million)

The FY 2019 Budget eliminates funding for Prion Disease activities. Prion diseases are a group of rare brain diseases affecting humans and animals that are uniformly fatal. Prion activities have been proposed for elimination to focus surveillance and monitoring activities on a broader range of high consequence pathogens and emerging diseases. Public health preventive measures recently instituted by the USDA will further reduce the risk of exposure to the U.S. population from Prion diseases. NIH also supports research of Prion diseases.

Chronic Fatigue Syndrome (-$5.4 million)

The FY 2019 Budget eliminates funding for Chronic Fatigue Syndrome (CFS) activities. CFS affects between one and four million people in the United States. CDC's CFS program works with states and experienced clinicians to develop tools to gather and analyze surveillance data and to educate clinicians and the public on the results of evidence-based studies. NIH has been funded to conduct biomedical research on CFS. CDC will prioritize funding to programs that support a broad range of diseases to maximize effectiveness in this limited-resource environment.

National Early Child Care Collaboratives (-$3.6 million)

The FY 2019 Budget eliminates dedicated funding for the National Early Child Care Collaboratives program, which has previously been funded by the Prevention and Public Health Fund. State, local, or tribal recipients of the *America's Health* Block Grant could continue to promote similar prevention activities in the Early Child Care and Education (ECE) setting as a way to prevent obesity. This program implements obesity prevention initiatives targeting ECE settings to help establish and improve the healthy nutrition and physical activity habits of young children. To carry out this work, CDC supports ECE learning collaboratives in nine states to facilitate best practices in nutrition, breastfeeding support, physical activity, and screen time.

Million Hearts (-$3.6 million)

The FY 2019 Budget eliminates dedicated funding for the Million Hearts® program, which has previously been funded by the Prevention and Public Health Fund. This program is a collaboration between CDC and the Centers for Medicare and Medicaid Services (CMS) to enhance cardiovascular disease prevention activities across the public and private sector.

Elderly Falls (-$2.0 million)

The FY 2019 Budget eliminates funding for the Elderly Falls program. Other agencies across the U.S. government and other key stakeholders invest in research and prevention programs to address Elderly Falls, and the materials that CDC has developed to support clinicians who treat older patients at risk for falls will remain available.

CDC FULL TIME EQUIVALENTS FUNDED BY P.L. 111-148

(dollars in millions) PPHF Program [1, 2]	ACA Sec.	2010 Total	2010 FTEs	2011 Total	2011 FTEs	2012 Total	2012 FTEs	2013 Total	2013 FTEs	2014 Total	2014 FTEs	2015 Total	2015 FTEs	2016 Total	2016 FTEs	2017 Total	2017 FTEs	2018 Total	2018 FTEs	2019 Total	2019 FTEs
Healthcare-associated Infections (HAI)	4002	N/A	N/A	$11.8	1.2	$11.8	5.0	$11.8	0.0	$12.0	6.4	$12.0	6.4	$12.0	6.4	$12.0	6.4	$12.0	6.4	0.0	0.0
Million Hearts	4002	N/A	N/A	$0.0	0.0	$0.0	2.2	$4.6	0.3	$4.0	2.1	$4.0	2.1	$4.0	2.1	$4.0	2.1	$4.0	2.1	0.0	0.0
National Early Care Collaboratives	4002	N/A	N/A	$0.0	0.0	$0.0	0.0	$0.0	0.0	$4.0	1.0	$4.0	1.0	$4.0	1.0	$4.0	1.0	$4.0	1.0	0.0	0.0
Public Health Workforce	4002	N/A	N/A	$25.0	51.8	$25.0	176.3	$15.6	91.0	$0.0	0.0	$0.0	0.0	$0.0	0.0	$0.0	0.0	$0.0	0.0	0.0	0.0
Antibiotic Resistance Initiative	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total		**N/A**	**N/A**	**$36.8**	**53.0**	**$36.8**	**183.5**	**$32.0**	**91.3**	**$20.0**	**9.5**	**$20.0**	**9.5**	**$20.0**	**9.5**	**$20**	**9.5**	**$20**	**9.5**	**0.0**	**0.0**

[1]Excludes employees or contractors who: Are supported through appropriations enacted in laws other than PPACA and work on programs that existed prior to the passage of PPACA; Spend less than 50% of their time on activities funded by or newly authorized in ACA; or who work on contracts for which FTE reporting is not a requirement of their contract, such as fixed price contracts.
[2]CDC tracks total contract costs for ACA activities in the Affordable Care Act Object Class Table but does not track individual contract staff.

(dollars in millions) ACA Program [1, 2]	ACA Sec.	2010 Total	2010 FTEs	2011 Total	2011 FTEs	2012 Total	2012 FTEs	2013 Total	2013 FTEs	2014 Total	2014 FTEs	2015 Total	2015 FTEs	2016 Total	2016 FTEs	2017 Total	2017 FTEs	2018 Total	2018 FTEs	2019 Total	2019 FTEs
Childhood Obesity PL 114-10	4306	N/A	N/A	$0.0	1.8	$0.0	2.0	$0.0	1.1	$0.0	1.1	$0.0	0.0	$10.0	0.0	$0.0	0.0	$0.0	0.0	$0.0	
Medical Monitoring in Libby, MT	10323	N/A	N/A	N/A	N/A	N/A	N/A	$4.0	1.1	$4.0	0.9	$4.0	0.9	$4.0	0.9	$4.0	0.9	$4.0	0.9	$4.0	0.9
Total		**N/A**	**N/A**	**$0**	**1.8**	**$0**	**2.0**	**$4.0**	**2.2**	**$4.0**	**2.0**	**$4.0**	**0.9**	**$14.0**	**0.9**	**$4.0**	**0.9**	**$4.0**	**0.9**	**$4.0**	**0.9**

[1]Excludes employees or contractors who: Are supported through appropriations enacted in laws other than PPACA and work on programs that existed prior to the passage of PPACA; Spend less than 50% of their time on activities funded by or newly authorized in ACA; or who work on contracts for which FTE reporting is not a requirement of their contract, such as fixed price contracts.
[2]CDC tracks total contract costs for ACA activities in the Affordable Care Act Object Class Table but does not track individual contract staff.

PHYSICIANS' COMPARABILITY ALLOWANCE (PCA) WORKSHEET

1) Department and component:

Centers For Disease Control and Prevention

2) Explain the recruitment and retention problem(s) justifying the need for the PCA pay authority.

(*Please include any staffing data to support your explanation, such as number and duration of unfilled positions and number of accessions and separations per fiscal year.)*

CDC has found that SES salaries do not meet the threshold to attract top level senior officials for critical science-focused positions who are appointed under SES. The use of PCA is critical, as it allows CDC to recruit and retain top level senior officials who possess requisite scientific expertise, and whose national/international stature command salaries which exceed the SES salary level.

3-4) Please complete the table below with details of the PCA agreement for the following years:

	PY 2017 (Actual)	CY 2018 (Estimates)	BY* 2019 (Estimates)
3a) Number of Physicians Receiving PCAs	2	0	0
3b) Number of Physicians with One-Year PCA Agreements	0	0	0
3c) Number of Physicians with Multi-Year PCA Agreements	2	0	0
4a) Average Annual PCA Physician Pay (without PCA payment)	179,700	0	0
4b) Average Annual PCA Payment	22,000	0	0

5) Explain the degree to which recruitment and retention problems were alleviated in your agency through the use of PCAs in the prior fiscal year.

(*Please include any staffing data to support your explanation, such as number and duration of unfilled positions and number of accessions and separations per fiscal year.)*

Historically, the use of PCA has enabled successful recruitment of physicians to key positions at CDC.

6) Provide any additional information that may be useful in planning PCA staffing levels and amounts in your agency.

It is difficult the forecast the precise number of positions for which a PCA agreement will be needed; however, the need will remain to pay PCA to any new physicians appointed under SES. Market pay will be utilized for all new accessions for physicians appointed under Title 5.

FY 2017 INTRAMURAL AND EXTRAMURAL OBLIGATIONS[1,2]

(dollars in thousands)

Major CDC Program	Extramural[3]	Intramural	Grand Total
Agency for Toxic Substances and Disease Registry (ATSDR)	$38,540	$35,933	$74,473
Birth Defects, Developmental Disabilities, Disability and Health	$104,953	$30,472	$135,424
CDC-Wide Activities and Program Support	$254,021	$63,126	$317,147
Chronic Disease Prevention and Health Promotion	$1,039,531	$133,027	$1,172,558
Emerging and Zoonotic Infectious Diseases	$443,060	$139,538	$582,598
Energy Employees Occupational Illness Compensation Program Act	$44,284	$5,145	$49,429
Environmental Health	$125,612	$56,499	$182,111
Global Health	$256,955	$167,726	$424,681
HIV/AIDS, Viral Hepatitis, STI and TB Prevention	$956,342	$164,211	$1,120,553
Immunization and Respiratory Diseases	$706,369	$89,909	$796,278
Injury Prevention and Control	$199,498	$36,342	$235,840
National Institute for Occupational Safety and Health	$157,707	$153,564	$311,271
Public Health Preparedness and Response	$915,730	$455,624	$1,371,355
Public Health Scientific Services (PHSS)	$280,343	$210,068	$490,411
Vaccines for Children	$4,376,409	$18,273	$4,394,682
World Trade Center Health Programs (WTC)[4]	$107,754	$102,797	$ 210,552
Grand Total	**$10,007,108**	**$1,862,254**	**$11,869,362**

[1] Obligations may vary from appropriated amounts due to multi-year funding.

[2] Does not include obligations from $1.771 billion in one-time emergency funding appropriated in FY 2015 for the U.S. Government response to contain, treat and prevent the spread of Ebola.

[3] All contracts are classified Extramural in the analysis supporting this table. Working Capital Fund transfers, which are classified as "Intra-agency services," are displayed as Intramural.

[4] WTC amount reflects total program obligations and does not include NYC reimbursement.

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CDC SPECIFIC ITEMS

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CDC DRUG CONTROL PROGRAM AGENCY

RESOURCE SUMMARY

(in Millions)

	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Drug Resources by Function			
Prevention	$125.402	$124.726	$125.579
Total Drug Resources by Function	$125.402	$124.726	$125.579
Drug Resources by Decision Unit			
Opioid Abuse and Overdose Prevention[1,2]	$125.402	$124.726	$125.579
Total Drug Resources by Decision Unit	$125.402	$124.726	$125.579
Drug Resources Personnel Summary			
Total FTEs (Direct Only)[3]	51	51	51
Drug Resources as a Percent of Budget			
Total Agency Budget [4,5]	$7,185.403	$7,020.756	$5,722.755
Drug Resources Percentage	1.75%	1.78%	2.19%

[1] The FY 2019 President's Budget combines 2017 Prescription Drug Overdose and Illicit Opioid Risk Use Factors to Opioid Abuse and Overdose Prevention.
[2] The FY 2019 President's Budget Request includes $10.0 billion in new resources invested across HHS for a variety of new and expanded efforts to fight the opioid crisis and address mental illness. As part of this effort, the FY 2019 President's Budget Request would allocate $175 million of that funding for activities in CDC. That funding is not reflected in this table.
[3] Includes vacancies.
[4] Excludes ATSDR and mandatory programs.
[5] Includes funding from the Prevention and Public Health Fund, PHSSEF Pandemic Influenza Transfers, and PHS Evaluation Fund.

Program Summary

Mission

The Centers for Disease Control and Prevention (CDC) serves as the nation's public health agency and exercises its expertise in developing and applying disease prevention and control, environmental health, and health promotion and health education activities designed to improve the health of the people of the United States. To accomplish its mission, CDC identifies and defines preventable health issues and maintains active surveillance of diseases through epidemiologic and laboratory investigations and data collection, analysis, and distribution.

CDC helps support the National Drug Control Strategy through its surveillance activities and by advancing data-driven prevention strategies to address both prescription and illicit drug abuse, misuse, and overdose. CDC's work aligns with the Department of Health and Human Services strategies to combat the opioid crisis:

- Improving access to treatment and recovery services;
- Promoting use of overdose-reversing drugs;
- Strengthening our understanding of the epidemic through better public health surveillance;
- Providing support for cutting edge research on pain and addiction; and
- Advancing better practices for pain management.

CDC works to prevent opioid-related harms and overdose deaths by:

- Using data to monitor emerging trends and direct prevention activities
- Strengthening state, local, and tribal capacity to respond to the epidemic and prevent opioid-related harms
- Working with providers, health systems, and payers to reduce unsafe exposure to opioids and treat addiction
- Coordinating with public safety and community-based partners to rapidly identify overdose threats, reverse overdoses, link people to effective treatment, and reduce harms associated with illicit opioids
- Increasing public awareness about the risks of opioids

Methodology

The CDC methodology for determining the drug control budget was established using the amount appropriated for the Opioid Abuse and Overdose Prevention Program (previously the Prescription Drug Overdose and Illicit Opioid Use Risk Factors Programs) under P.L. 115-31, Consolidated Appropriations Act, 2017.

CDC is committed to an approach that protects the public's health and prevents opioid overdose deaths. CDC's activities supported through appropriations focus on fighting the opioid epidemic by improving data quality and surveillance to monitor and respond to the epidemic, strengthening state efforts by scaling up effective public health interventions, and supplying healthcare providers with the data, tools, and guidance needed to improve the safety of their patients. CDC also is leveraging and strengthening collaboration with partners in other sectors, including but not limited to public safety and those engaged with substance use disorder treatment.

Budget Summary

The FY 2019 drug control request for the Centers for Disease Control and Prevention of **$125,579,000** is $852,807 above the FY 2018 Annualized CR level.

Opioid Abuse and Overdose Prevention
FY 2019 Request: $125.579 million
($852,807 above the FY 2018 Annualized CR level)

The FY 2019 Budget Request includes funding to continue state support for opioid overdose prevention programs for a national response to the epidemic. The investment will support rigorous monitoring and evaluation and improvements in data quality at a national level. CDC also will continue efforts to increase uptake among providers of the CDC Guideline for Prescribing Opioids for Chronic Pain. In addition, CDC will continue to coordinate in efforts with federal partners, including with the Bureau of Justice Assistance's Harold Rogers Prescription Drug Monitoring Program (PDMP), helping states maximize the use of their PDMPs as health tools to identify and address inappropriate prescribing.

Deaths from heroin have tripled since 2010, and deaths from other illicit opioids also are sharply on the rise. In FY 2019, CDC will continue to address the rising rate of overdoses attributable to illicit opioids by supporting state efforts to improve their ability to detect, track, and respond to illicit opioid overdoses, including obtaining more timely and accurate emergency department and death data. CDC likewise will continue to strengthen the relationship between public health and public safety to address and prevent overdoses attributable to illicit opioids in particular.

State Support

In FY 2015, CDC initiated its Overdose Prevention in States (OPIS) effort, which is comprised of three state programs that together provide funding and scientific support to 45 states and Washington, D.C. The overarching aim of OPIS is to strengthen the public health response to the epidemic by shoring up greater expertise at the state level with regard to overdose surveillance and other prevention strategies to inform a comprehensive response to save lives and reduce injuries. Funds are invested in states across three distinct

programs: the Prevention for States (PfS) program, the Data-Driven Initiative (DDPI), and the Enhanced State Opioid Overdose Surveillance (ESOOS) program.

Beginning in FY 2015, the PfS program funded an initial 16 states. With additional appropriations received in FY 2016, the program was scaled up and now funds a total of 29 states to conduct activities that contribute to the National Drug Control Strategy to "prevent drug use in our communities." The 29 PfS states are funded to implement activities within the following four categories:

- Enhancing PDMPs and leveraging them as public health and clinical decision making tools
- Improving health system and insurer practices to improve opioid prescribing
- Evaluating state policies in place to address the epidemic
- Implementing rapid response projects to allow states heightened flexibility in using dollars to address opioid overdose as it manifests within their borders

These strategies are being implemented by state health departments under PfS to improve patient care and safety and reduce high-risk prescribing as a key driver of the opioid overdose epidemic.

Also in FY 2016, DDPI funded a total of 13 states and Washington, D.C. to build and support the infrastructure, collaboration, and data capacity necessary to address and prevent opioid overdoses within their borders.

Lastly, CDC funded an initial 12 states in FY 2016 under its ESOOS program to increase the timeliness of nonfatal and fatal opioid-involved overdose reporting, identify associated risk factors with fatal overdoses, and to disseminate surveillance findings to key stakeholders to inform the public health response. With the increase in appropriations received in FY 2017, CDC scaled up the ESOOS program, which now funds a total of 32 states and Washington, D.C.

Moving forward, CDC will continue its approach in partnering with states, territories, and tribes to combat the opioid epidemic. In particular, CDC will provide state health departments with resources and support needed to scale up surveillance and to advance preventive interventions. Examples of state efforts include enhancing PDMPs and leveraging them as public health surveillance and clinical decision support tools, as well as improving health system and insurer practices to improve safe opioid prescribing. In addition, CDC will sharpen its focus on localities and communities within states, recognizing that there may be particular areas in which targeted resources are needed to quickly address overdose outbreaks that may occur and prevent them from happening again.

CDC also will strengthen surveillance of opioid overdoses within states by improving the timeliness of actionable fatal and non-fatal opioid overdose data. State activities will include supporting an early warning system to detect sharp increases or decreases in nonfatal opioid overdoses, collecting information on the number and rate of opioid overdose deaths, and analyzing information from toxicology tests and death scene investigations. Funds likewise will support comprehensive toxicology testing within coroner and medical examiner offices.

To enhance prevention activities, CDC will expand the reach of messaging on risks associated with opioids. In calendar year 2017, CDC launched its communications campaign in targeted states. In 2018, CDC will support activities to expand campaign messaging in more states and through more tailored and targeted communications tactics.

Indirect Support

Apart from these programs, the FY 2019 budget request continues to provide funding for expansion of electronic death reporting to provide faster, better quality data on deaths of public health importance, including prescription and illicit opioid overdose deaths.

Performance

CDC has been tracking the rise of opioid overdose deaths, using the data to pivot to prevention activities to curb this alarming epidemic. Since 1999, there have been more than 165,000 deaths from overdoses related to prescription overdoses. Taken together with illicit opioids, that equals about 78 Americans dying every day from an opioid overdose. As one of the programs under the OPIS umbrella, CDC's PfS program currently funds 29 states to advance and evaluate comprehensive state-level interventions for preventing opioid-related overdose, misuse, and abuse. CDC will evaluate changes in the number of overdose deaths involving all opioids (prescription and illicit) among the 29 states funded under PfS as part of the National Drug Control Strategy.

In addition to CDC's state-based opioid prevention programs, the agency will continue implementation of the CDC Guideline for Prescribing Opioids for Chronic Pain, which was released in March 2016. Improving the way opioids are prescribed through clinical practice guidelines can ensure patients have access to safer, more effective chronic pain treatment while reducing the number of people who misuse, abuse, or overdose from these drugs.

SIGNIFICANT ITEMS

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SIGNIFICANT ITEMS IN FY 2018 APPROPRIATIONS REPORT - HOUSE

House Appropriations Committee, Labor/HHS/Education Subcommittee, H. Rept. 115-244

Latent TB Infection

The Committee acknowledges that only by addressing latent TB infection can the U.S. achieve TB elimination. The Committee recognizes the vital role of CDC's Division of TB Elimination to address TB and urges support to ensure that State and local TB programs have adequate resources to effectively identify and treat latent TB infection cases. (Page 34 & 35, H. Rept. 115-244)

Action taken or to be taken

CDC appreciates the Committee's interest in our tuberculosis (TB) work. Up to 13 million people in the U.S. have latent TB infection, which does not have symptoms and cannot be transmitted. Five to ten percent of these people will develop TB disease. In fact, 86% of U.S. TB cases result from reactivated latent TB infection, often many years after initial exposure. The elimination of TB in the United States can be achieved through domestic activities to address latent TB infection in conjunction with a focus on controlling TB. In FY2017, CDC provided approximately $75 million to state, local, and territorial health department TB programs.

To meet the goal of TB elimination, CDC is implementing several projects that will inform new efforts in targeted testing and treatment for latent TB infection, improving CDCs ability to adequately support State and local TB programs. CDC's current activities to address latent TB include:

1. CDC's 10 TB Epidemiologic Studies Consortium sites are working with providers who serve high-risk communities to increase testing and treatment for latent TB infection.

2. CDC awarded the Massachusetts Department of Public Health $1.5 million over three years to demonstrate a feasible, scalable program to expand latent TB infection testing and treatment to high-risk individuals through collaborations with community organizations and medical providers.

3. To measure progress in the expansion of latent TB infection testing and treatment, CDC is working with external experts and state TB programs to guide data collection on testing and treatment for latent TB infection from 9 sentinel sites in 2020 and report results in 2021.

Sepsis

The Committee encourages CDC to increase its public awareness, outreach, and education efforts on sepsis, including health provider outreach and other related activities to improve diagnosis and treatment of sepsis. The Committee requests an update in the fiscal year 2019 Congressional Justification on activities to improve public awareness of sepsis. (Page 36, H. Rept. 115-244)

Action taken or to be taken

Sepsis is a life-threatening condition caused by the body's overwhelming response to an infection, leading to tissue damage, organ failure, and even death. Based on CDC estimates, 1.7 million adult Americans got sepsis in 2014 and 270,000 died. CDC investigations showed that sepsis begins outside of the hospital for 4 out of every 5 patients. Many patients who developed sepsis receive frequent medical care to manage a chronic condition, or had recently used healthcare services for other reasons.

CDC recognizes sepsis as a medical emergency. Time matters. While preventing infections and illness is critical to reduce the risk of sepsis, early detection and immediate treatment is often the difference between life and death.

CDC recognizes the critical need to engage patients and their families, patient advocacy groups, and healthcare providers to work together to quickly recognize and treat sepsis—improving patient outcomes and saving American lives. On August 31, 2017 and in conjunction with Sepsis Awareness Month, CDC launched Get Ahead of Sepsis, an educational initiative to protect Americans from the devastating effects of sepsis. This initiative emphasizes the importance of early recognition and timely treatment of sepsis, as well as the importance of preventing infections that could lead to sepsis.

Get Ahead of Sepsis calls on healthcare professionals to educate patients, prevent infections, identify sepsis early, and start sepsis treatment fast. In addition, this work urges patients and their families to prevent infections, be alert to the symptoms of sepsis, and seek immediate medical care if sepsis is suspected or for an infection that is not healing or is getting worse.

The initiative offers new resources for healthcare professionals and patients—including fact sheets, brochures, infographics, digital and social media, and shareable videos (e.g., public service announcements [PSA]). National news stories, blogs, a global Twitter Chat, and continuing education opportunities accompanied the updated sepsis materials. As of December 15, 2017:

- Over 40,000 Get Ahead of Sepsis materials have been downloaded
- CDC Sepsis website views increased 63% compared to 2016
- Our Get Ahead of Sepsis PSA has been viewed over 50,000 times on Facebook
- CDC is joined by over 800 representatives from professional societies, health departments, healthcare facilities, and other organizations for the launch and promotion of Get Ahead of Sepsis education efforts.

In an effort to educate the public, CDC will provide materials for state and local health departments to co-brand their sepsis prevention programs in early 2018. CDC will also deploy additional educational and promotional items throughout 2018, including additional PSAs. In order to prevent sepsis, CDC will also continue to:

- assess burden associated with sepsis
- study the risk factors for sepsis
- engage and educate healthcare professionals, patients, and their families to recognize the signs of sepsis and take action
- work with partners to promote sepsis as a medical emergency
- encourage infection prevention through infection control, vaccination programs, chronic disease management, and appropriate antibiotic use

The risk and burden of sepsis increases when antibiotics no longer work to kill the germs as designed. CDC's antibiotic resistance initiative and efforts to ensure that doctors have the right antibiotics they need to treat patients are essential for appropriate treatment of sepsis.

Tick-Borne Disease Resources and Guide

The Committee encourages CDC to ensure transparency on its website of its physician education programs regarding Lyme disease, including scientific resources and schedules; to solicit input from the treating physician community at large regarding such education programs; and to include the broad spectrum of scientific viewpoints. The Committee also encourages CDC to provide a written rationale for the selection of Lyme and tick-borne disease treatment guidelines it displays on its website and to intensify surveillance of Borrelia infections in non-endemic/non-high incidence areas. (Page 36, H. Rept. 115-244)

Action taken or to be taken

CDC shares the Committee's interest in transparency regarding our Tick-Borne disease resources. Lyme disease resources directed specifically toward healthcare providers can be found at https://www.cdc.gov/lyme/healthcare/.

Annual exhibitions at front line healthcare provider medical conferences provide one-on-one interaction with providers who treat tickborne diseases. In 2017, approximately 800 providers were reached in this manner. Additionally, state health departments were solicited for input regarding information that would be helpful to include in future versions of Tickborne Diseases of the United States: A Reference Manual for Health Care Providers, based on their local expertise.

In regard to treatment guidelines for Lyme disease, the Treatment page at https://www.cdc.gov/lyme/treatment/ was updated on December 1, 2017. In the decade since the IDSA guidelines were published, additional research further informs Lyme disease treatment. As a result, treatment information that is more immediately helpful to healthcare providers and people with Lyme disease was added.

We thank the Committee for its interest in tickborne disease surveillance. CDC and state partners are exploring alternative methods of refining surveillance techniques for Lyme disease. This could include analysis of large health insurance databases or lab-based surveillance at sentinel locations. Additionally, CDC and partners have published a number of studies on Lyme disease surveillance since 2016.

Vector-Borne Diseases

The Committee directs CDC to include goals and performance indicators for each high-priority vector-borne disease in its annual Congressional Justification. Additionally, within 90 days of enactment, the Committee directs CDC to submit a report to the Committees on Appropriations of the House of Representatives and the Senate, that: (1) Compares funding for high priority vector-borne diseases to the burden of disease as defined by Disability Adjusted Life Years (DALYs), and (2) Includes estimates for the burden of each high-priority vector-borne disease on the U.S. economy, including direct medical costs, indirect medical costs, nonmedical costs, and productivity losses. (Page 36, H. Rept. 115-244)

Action taken or to be taken

CDC is evaluating a Lyme disease-related performance measures that aligns with the agency's established framework for addressing Lyme disease in the United States.

CDC's framework for addressing vector-borne diseases includes the following activities:

- Support for states through Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) Cooperative Agreement funding, Emerging Infections Program (EIP) funding, and other cooperative agreement support.
- Completing studies on the economic burden of tick-borne diseases and tick-borne disease prevention.
- Communication and education activities.
- Providing diagnostic testing services at CDC.
- Identifying and promoting the development and evaluation of next-generation serologic assays to improve the detection of Lyme disease.

CDC plans to submit a Report to Congress as requested.

Vector Control Guidelines

The Committee requests that CDC maintain an online guide for use by States and local communities with a full scope of vector control options, tools, and other factors State and local jurisdictions may consider as they develop plans to carry out vector control activities to control Zika and other related diseases carried by insects. The Committee encourages CDC to update the guidelines annually. (Page 36, H. Rept. 115-244)

Action taken or to be taken

CDC maintains and regularly reviews and updates publicly-accessible resources on vector control for states and local communities.

Vector control guidance for Ixodes scapularis ticks can be found at https://www.cdc.gov/lyme/prev/in_the_yard.html and refer readers to the Connecticut Agricultural Experiment Station's Tick Management Handbook, funded in part by CDC. Additional CDC research into new vector control techniques for ticks is posted at https://www.cdc.gov/ticknet/research/.

CDC also has resources for mosquito control here: https://www.cdc.gov/chikungunya/pdfs/Surveillance-and-Control-of-Aedes-aegypti-and-Aedes-albopictus-US.pdf. Additionally, CDC is monitoring advancements in novel mosquito control methods and will update these resources with recommendations, as evidence becomes available.

Zika

The Committee continues to support CDC's preparedness and response efforts to control outbreaks of Zika virus infection. The Committee strongly encourages CDC to invest in innovative vector control technologies to enhance current vector-borne disease control efforts, including those discussed by the World Health Organization's Vector Control Advisory Group, which outlines new and existing vector control tools for use in response to Zika virus outbreaks. Therefore, the Committee expects CDC to continue to work closely with the vector control unit in Puerto Rico and to address not only basic surveillance and research but also the use of new approaches to limit the spread of infected Aedes Aegypti mosquitoes through innovative vector control technologies which can be effective in environments and locations not amenable to traditional pesticides. (Page 37, H. Rept. 115-244)

Action taken or to be taken

CDC thanks the Committee for its ongoing support of our preparedness and response efforts to control outbreaks of Zika virus infection. CDC shares the Committee's interest in understanding the potential role that innovative vector control methods may have in vector-borne disease control efforts.

CDC awarded nearly $48 million to five universities to establish centers that can help effectively address emerging and exotic vector-borne diseases in the United States, like Zika. There are significant regional differences in vector ecology, disease transmission dynamics and resources across the United States. These centers will help generate the necessary research, knowledge and capacity to enable appropriate and timely local public health action for vector-borne diseases throughout the country. CDC will collaborate with jurisdictions to support implementation and evaluation of methods that have been EPA or FDA-approved for implementation, as resources are available.

Through our existing relationship with the Puerto Rico Department of Health and the vector control unit in Puerto Rico, CDC will continue to address surveillance and research and will also offer technical assistance for potential future use of innovative vector control technologies.

Chronic Obstructive Pulmonary Disease

The Committee understands that chronic obstructive pulmonary disease (COPD) is the third leading cause of death in the U.S., leading to the death of over 145,000 Americans each year. The Committee commends CDC for working with the National Heart, Lung, and Blood Institute on the development of the National Action Plan for COPD. The Committee expects CDC to implement the public health recommendations identified in the plan. (Page 37, H Rept. 115-244)

Action taken or to be taken

CDC worked with the National Heart, Lung, and Blood Institute (NHLBI) to lay the groundwork for a COPD National Action Plan and has a history of collaborating with NHLBI to disseminate surveillance data, public health research findings, and messages about COPD. CDC also has a strong history of leveraging existing surveillance data to better understand the epidemiology of COPD and inform prevention. CDC no longer receives funding for COPD activities, including surveillance or implementation of the COPD National Action Plan. Previous work on COPD was funded by the Community Health Promotion subline, which was eliminated in FY 2016. Continued interagency collaborations and local and state-level surveillance activities are necessary to ensure effective and efficient implementation of the National Action Plan for COPD.

Chronic Pain

The Committee directs CDC to collect epidemiological data to clarify the incidence and prevalence of various pain syndromes differentiated by patient age, comorbidities, socio-economic status, race, and gender. The Committee directs CDC to collect resource utilization data of medical and social services; on direct healthcare costs of pain treatment, both traditional and alternative; on the effectiveness of evidence based treatment approaches; and on indirect costs (i.e., missed work, public and private disability, reductions in productivity). Finally, the Committee directs CDC to report these pain statistics to Congress and publish annually. (Page 38, H. Rept. 115-244)

Action taken or to be taken

In 2016, CDC released the CDC Guideline for Prescribing Opioids for Chronic Pain. Since the release, CDC has taken many steps to ensure dissemination of the Guideline to providers and at-risk patients. CDC has also worked with states to improve their ability to adopt guideline recommendations and track progress in health systems through quality improvement measures, electronic clinical decision supports in electronic health records, and coordination of care plans. Furthermore, CDC developed an evidence-based, consumer-directed communications campaign to increase awareness and knowledge among Americans about the risks of prescription opioids, and to increase the number of people who avoid non-medical (recreational) use of opioids or medical use of opioids for pain management.

CDC collects data on chronic pain through its National Health Interview Survey (NHIS). CDC will analyze responses to chronic pain questions in the 2017 NHIS and produce estimates of the prevalence of chronic pain differentiated by respondent characteristics, as statistically appropriate. CDC cannot produce estimates of incidence, as the NHIS questions do not capture information on incidence.

CDC does not collect information on the direct and indirect costs for the treatment of chronic pain. Other HHS agencies collect cost information, but costs for the treatment of chronic pain may not be distinguished from overall costs. Some cost information can be obtained from administrative claims. However, these records may not distinguish indirect from direct costs.

CDC regularly publishes its data and, as data is published, will ensure Congress is notified.

Good Health and Wellness in Indian Country

The Committee recommendation includes $16,000,000 for awards to Tribes and Tribal Organizations to comprehensively address the leading causes of death and associated risk factors while incorporating culturally-driven wellness practices under the Good Health and Wellness in Indian Country program. The Committee also directs CDC to provide funding at not less than the fiscal year 2017 level within CDPHP for the Comprehensive Approach to Good Health and Wellness in Indian Country cooperative agreement. (Page 39, H. Rept. 115-244)

Action taken or to be taken

CDC is committed to supporting new investments for tribes and tribal organizations. As part of the $16 million Good Health and Wellness in Indian Country budget line, CDC will fund two programs. First, CDC awarded a new, five-year, cooperative agreement to increase the capacity of Tribal Epidemiology Centers to deliver public health functions to and with the tribes/villages in their Indian Health Service Area (including the Urban Areas). The awards will contribute to reductions in chronic diseases and risk factors, reductions in disparities in health outcomes, and improvements in overall health by building public health capacity and infrastructure in Indian Country for disease surveillance, epidemiology, prevention and control of disease, injury, or disability, and program monitoring and evaluation. CDC awarded approximately $8.5 million to the twelve Tribal Epidemiology Centers and one Network Coordinating Center, the Alaska Native Tribal Health Consortium.

Second, CDC is in the process of competing a new cooperative agreement to support tribal practices identified by tribal health leaders that build resiliency and connections to community, family, and culture, which over time, can reduce risk factors for chronic disease among American Indians and Alaska Natives. The $4 million/year program will fund up to 14 American Indian Tribes and Alaska Native Villages or tribally designated organizations, and up to 14 Urban Indian Organizations.

The funding for these two programs is in addition to the funding for the Comprehensive Approach to Good Health and Wellness in Indian Country cooperative agreement, which funds 12 tribes, 11 tribal organizations and 12 tribal epidemiology centers.

Ovarian Cancer

The Committee continues to support the Ovarian Cancer Control Initiative to advance ovarian cancer prevention, early detection, risk assessment, and access to care. The Committee commends the CDC for its work to evaluate existing risk assessment tools, which can be used to help identify patients with a genetic predisposition to ovarian and other cancers, and identify which of these existing tools are valid, reliable, and the most user friendly for providers and patients. The Committee requests that the Secretary of HHS present the findings of this review and provide recommendations with respect to how CDC can support the deployment of the tools found to have the greatest value and utility in the fiscal year 2019 Congressional Justification. (Page 40, H. Rept. 115-244)

Action taken or to be taken

The CDC appreciates Congress's interest in tools to support Ovarian Cancer and Control efforts. Primary care providers routinely collect and assess a patient's family history of cancer for any signs of increased risk. Several tools have been developed to help providers decide when a family history of cancer is significant enough to benefit from meeting with a genetic counselor. While these tools are designed to meet a similar goal, their approaches to risk stratification and referral to counseling vary. CDC conducted a study to assess the referral patterns of several of these tools for family history risk assessment for hereditary breast and ovarian cancer. The focus was on evaluating how many patients each of the tools tended to refer and how similar or different tools were in their referral.

Six risk assessment tools were included in the CDC evaluation study. Results indicated that referral rates between tools varied widely, ranging from less than 1% up to 24%. Several factors are driving the differences in

referral rates between tools, which presents important questions and challenges for health care providers and health systems. CDC plans to publish these results and develop resources to help health systems and providers decide which tool(s) may be best suited for implementation based on their patient populations and available genetic counseling referral networks. CDC will disseminate results through relevant CDC-funded programs and partners.

Psoriasis and Psoriatic Arthritis

The Committee directs the CDC to develop an action plan not later than 180 days after the enactment of this Act as to how it can leverage existing programs and resources, including the Prevention Research Centers and projects supported by the CDC's Arthritis program, to build upon the agency's Public Health Agenda for Psoriasis and Psoriatic Arthritis to address diagnosis, treatment and public health self-management needs of this patient population. (Page 41, H. Rept. 115-244)

Action taken or to be taken

The CDC Arthritis Program recognizes the severity of disease among people affected by psoriasis as well as psoriatic arthritis, which is one of the more than 100 conditions that comprise arthritis and other rheumatic conditions. The Arthritis Program includes people with psoriatic arthritis in existing program activities focusing on those with "arthritis and other rheumatic conditions" or those who self-report "doctor-diagnosed arthritis." CDC's Public Health Agenda for Psoriasis and Psoriatic Arthritis, published in 2010, identifies priorities for public health research. CDC has not received funding for Psoriasis and Psoriatic Arthritis since 2010, and does not currently have specific programmatic activities addressing these conditions.

Congenital Heart Disease

The Committee commends NCBDDD for its leadership in addressing Congenital Heart Disease (CHD) and adult CHD surveillance efforts and requests a report in the fiscal year 2019 Congressional Justification on CDC surveillance and research efforts regarding CHD across the lifespan, age-specific prevalence, and factors associated with those patients who may have dropped out of appropriate specialty care. (Page 42, H. Rept. 115-244)

Action taken or to be taken

CDC appreciates the Committee's support to improve the lives of people with Congenital Heart Disease (CHD). General information on CDC's CHD work is included in the 2019 Congressional Justification. Additional details on CDC's CHD surveillance efforts are below.

Surveillance of adolescents and adults with CHD:

- In FY 2018, CDC will continue analyzing data from the three initial pilot sites: Emory University, Massachusetts Department of Public Health, and the New York State Department of Health. We anticipate publishing findings in FY 2018 on: estimated prevalence, other health conditions, and healthcare use among adolescents, adults, and pregnant women with CHD; and lessons learned from the surveillance study regarding linking data from multiple electronic sources on people with CHD
- In FY 2018, CDC will continue to work on the follow-up project that built on lessons learned from the pilot and includes more surveillance sites (Emory University, Duke University, University of Colorado-Denver, New York State Department of Health, and the University of Utah), additional data sources, and three more years of data. All sites are cleaning and linking data, and two sites are conducting a survey of parents of adolescents with CHD to assess barriers and challenges with regard to transitioning from pediatric to adult care. Understanding health issues and needs at all ages is vital to improving the lives of individuals with these conditions. CDC will share findings though publications and presentations, with families, healthcare providers, and partner groups, to help improve to lives of people with CHD.

In addition, CDC and its partners--the University of Arizona and Arkansas Center for Birth Defects Research and Prevention--continue recruiting for Congenital Heart Survey To Recognize Outcomes, Needs, and well-being (CHSTRONG). CHSTRONG assesses health, social and educational status, and quality of life among young adults with CHD who were identified through birth defects surveillance systems. Recruitment is ongoing through 2018. To date, CDC has received over 1,100 survey responses.

Duchenne Muscular Dystrophy

The Committee expects NCBDDD to continue its work to update, evaluate, and disseminate the revised Duchenne care standards; to expand surveillance of Duchenne via the MD STARnet, to develop a Duchenne newborn screening program; and to support refinement of an International Classification of Disease (ICD 10) code for Duchenne and Becker Muscular Dystrophy. (Page 41, H. Rept. 115-244)

Action taken or to be taken

CDC is committed to improving the standard of care for people living with muscular dystrophy. CDC has developed and disseminated comprehensive care considerations for health care providers to use with their patients living with Duchenne muscular dystrophy (DMD) and four other types of muscular dystrophy. The 2010 DMD care considerations provided a standard level of care for individuals with DMD and has been well received and widely disseminated, including internationally, by advocacy groups and the Duchenne muscular dystrophy community. In FY 2018, CDC will publish an update to the comprehensive Duchenne Muscular Dystrophy (DMD) Care Considerations. CDC is planning and coordinating dissemination efforts with key partners.

Additionally, CDC is increasing muscular dystrophy surveillance from longitudinal data collection for two types of muscular dystrophies (Duchenne, Becker), which will enable us to address the gap in knowledge on prevalence, mortality, survival, and care received and differences in care of these populations. For Duchenne and Becker specifically, including data on all clinic visits will enable CDC to determine how well care is being received in accordance to the updated care considerations. Collecting data on specific DMD mutations for Duchenne and Becker will enable CDC to determine those that are eligible for mutation-specific (FDA approved) therapies. Longitudinal data collection will allow CDC to better understand the outcomes of these populations and whether they are covered for these drugs.

In 2017, CDC supported partner-led efforts towards refinement of an International Classification of Disease (ICD 10) codes for Duchenne and Becker Muscular Dystrophy. New codes for Duchenne/Becker muscular dystrophy and facioscapulohumeral muscular dystrophy were approved in 2017 and will start being used in October of 2018. These new codes will facilitate surveillance, allow for more accurate estimates such as of incidence and prevalence, and enable better identification and following of medical care received by newborns with DMD identified through screening programs and older patients with DMD.

CDC staff also have participated in partner-led meetings and workgroups involved in developing a large pilot newborn screening study for DMD that builds upon the original CDC-funded Ohio newborn screening program. In October 2017, Parent Project Muscular Dystrophy (PPMD) held a meeting of stakeholders that CDC staff attended.

Childhood Lead Poisoning Prevention

The Committee encourages CDC to collaborate with the Department of Education to improve awareness of educational intervention strategies for children with elevated blood lead levels. The CDC and the Department of Education are expected to implement prioritization initiatives and provide technical assistance that informs educators, parents, and State and local education agencies about the severity and symptoms of lead poisoning and intervention strategies for children with elevated blood lead levels. The Committee requests an update on the CDC's strategy and its outcomes on this topic in the fiscal year 2019 Congressional Justification. (Page 45, H. Rept. 115-244)

Action taken or to be taken

CDC participates in the Federal Partners in School Health initiative with the U.S. Department of Education. CDC works with the Department of Education to optimize the agencies' efforts in school health related topics. Additionally, CDC and the Department of Education have collaborated to establish the Federal Partners in School Health interagency collaborative. CDC is also working to establish a Lead Exposure Prevention Advisory Committee and intends to have representation from the Department of Education on the Committee.

Rape Prevention

The Committee directs CDC to allocate at least 75 percent of funds appropriated to the Rape Prevention and Education program to State and territory health departments through formula grants that support State and local rape prevention activities. (Page 45, H. Rept. 115-244)

Action taken or to be taken

CDC appreciates the Committee's support of the Rape Prevention and Education (RPE) program. CDC's RPE program provides funding to state and territory health departments in all 50 states, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands, and the Commonwealth of Northern Mariana Islands to support state/territory and community efforts to prevent sexual violence using the best available evidence. Grantees use CDC funding to implement state- and territory-wide sexual violence prevention plans, implement and evaluate sexual violence prevention programs, and address local sexual violence prevention needs. CDC recognizes the importance of adequate support for rape prevention activities and will allocate resources to state and territorial health department grantees as directed.

Procurement of Medical Countermeasures

The Committee strongly encourages CDC to take steps to ensure that the procurement process for MCMs is efficient, consistent, and aligned with the mission of the Strategic National Stockpile. (Page 48, H. Rept. 115-244)

Action taken or to be taken

CDC appreciates the Committee's interest in the procurement of medical countermeasures (MCMs). CDC will continue to work to ensure that the procurement process for MCMs is efficient, consistent, and aligned with the mission of the Strategic National Stockpile.

Cross-Border Disease Control

The Committee requests that CDC provide a report in the fiscal year 2019 Congressional Justification on how CDC coordinates its various programs with State and local public health departments and international partners to measure, track, control, and manage cross-border infectious disease in high-volume port cities. (Page 48, H. Rept. 115-244)

Action taken or to be taken

CDC is the Common Defense of the Country against health threats at U.S. Ports of Entry. Through our partnerships with local, state, and international partners, we work to measure, track, control, and manage cross-border infectious disease in high-volume port cities:

- CDC's 20 Quarantine Stations work to ensure that people, animals and animal products, and other items coming to the United States do not spread disease within U.S. communities; and to rapidly distribute life-saving drugs across the United States in emergency situations for conditions such as malaria and botulism (nearly 150 doses distributed in fiscal year 2017).
- Annually, CDC responds to ~2000 ill traveler reports from airlines, vessels, Customs and Border Patrol (CBP), health authorities from state/local agencies, and other countries. CDC also collaborates with state and local health departments to locate and provide public health follow up for individuals who were exposed to communicable diseases during travel (e.g., measles, tuberculosis (TB), and meningitis). The Control of Communicable Disease regulations were updated in 2017 and will assist in making these investigations timelier.
- CDC responds to major health emergencies involving travel to and within the United States, such as Middle East Respiratory Syndrome (MERS), Ebola, Zika, plague, and others by working with federal and local partners to provide the best available public health science, education, and training to partners and communication materials to travelers to prevent the introduction and spread of communicable disease.
- CDC maintains collaborations with local, state, federal, and private sector partners in developing All-Hazards biodefense strategies and communicable disease response plans at U.S. Ports of Entry for known (e.g., pandemics including influenza, Ebola, Zika, MERS, Yellow Fever, plague, and others) and unknown naturally emerging threats, as well biological terrorism threats.

Keeping Americans healthy during travel and while living abroad: CDC helps reduce illness and injury in U.S. residents traveling internationally or living abroad by monitoring global outbreaks to provide ongoing situational awareness through mobile applications, specific travel advisories, recommendations, education, and support to travelers and healthcare providers, based on the best science (which includes the Yellow Book—the gold standard reference text for those who advise international travelers about health risks). Over the course of the Zika virus outbreak, CDC issued and maintained dozens of travel advisories and continues to provide guidance on the risks of traveling to areas with active Zika transmission.

Protecting the health of U.S. communities along the U.S.-Mexico Border: As a binational effort, CDC's Border Infectious Disease Surveillance System (BIDS) collaborates with local, state, and federal partners to enhance infectious disease surveillance, build border-region epidemiology and laboratory capacity, and strengthen binational communication systems to improve disease prevention and response.

Enhancing public health security at global ports of entry to prevent the importation of communicable disease into the United States: CDC works internationally to improve other countries' International Health Regulations capacities to prevent, detect, and respond to infectious diseases and mitigate international spread through engagement at ports of entry, in border regions, and among internationally mobile populations.

Through the Global Health Security Agenda initiative, CDC is assisting Benin, Cote d'Ivoire, Ghana, Guinea, Liberia, Nigeria (Abuja and Lagos), Senegal, Sierra Leone, Tanzania, and Togo to develop public health emergency response plans and standard operating procedures for their major international ports of entry.

CDC will continue to use data from strategically located regional Global Disease Detection (GDD) Centers to help countries and international partners respond to infectious threats and contain them quickly and efficiently, before they reach U.S. shores. Through this network of GDD Centers and CDC Country Offices, CDC facilitates in-country trainings to host government institutions, such as ministries of health, transport, interior, security, agriculture, and customs, to achieve the standards set by the World Health Organization's International Health Regulations regarding disease surveillance at international ports-of-entry. In addition, the Global Disease Detection Operations Center located at CDC headquarters in Atlanta, monitors outbreaks across the globe 24/7.

General information on CDC's public health programs related to Quarantine and Migration is included in the 2019 Congressional Justification.

SIGNIFICANT ITEMS IN FY 2018 APPROPRIATIONS REPORT - SENATE

Senate Appropriations Committee, Labor/HHS/Education Subcommittee, S. Rept. 115-150

HIV Screening

The Committee continues to support CDC grant programs that work to improve awareness of HIV status and linkage to care. The Committee requests an update in the fiscal year 2019 CJ on CDC action to improve testing rates and reduce late stage diagnosis in States that scored low on these measures of effectiveness. (Page 59, S. Rept. 115-150)

Action taken or to be taken

CDC continually strives to identify individuals with HIV who are unaware of their status. As a result of sustained testing efforts, the proportion of Americans with HIV who know their status has reached 85%. CDC works with national, state, and local partners to ensure that HIV testing is simple, available, and routine, and focuses on initiatives to improve testing rates and reduce late stage diagnosis. CDC invests significant resources in getting people at risk for HIV tested, primarily through health department and community-based organization (CBO) programs. Approximately 3 million CDC-funded HIV tests were conducted in 2015. These testing efforts identified more than 12,500 persons with newly diagnosed HIV infection, representing about 1/3 of new HIV diagnoses in the U.S.

CDC recognizes that HIV-related health disparities exist among some populations and aligns domestic HIV funding accordingly. In 2016, 44% of new HIV diagnoses in the United States were among African Americans, who comprise 12% of the US population. In 2016, 43.3% of funding supported prevention efforts among African Americans. Similarly, gay, bisexual and other men who have sex with men (MSM) accounted for 83% of the new HIV diagnoses among all males aged 13 and older and 67% of the total new diagnoses in the United States. In 2016, 46.5% of targeted funding supported prevention among MSM.

In addition to targeted funding efforts, CDC launched a national HIV testing campaign in 2016 encouraging all people ages 18-64 to get tested at least once and that persons at high risk get tested more frequently, which aligns with CDC's recommendations for HIV testing. Furthermore, CDC's testing efforts focus on ensuring persons at high risk are tested at least annually for HIV infection. For example, CDC's health department and community-based partners are working to identify persons at highest risk for HIV infection who do not have access to medical care. Once identified, individuals are linked to services for testing or repeat testing.

CDC is working with a variety of partners, including clinician groups, to strengthen the implementation of U.S. Preventive Services Task Force (USPSTF) HIV screening recommendations. In addition, to ensure active implementation of evidence-based, effective HIV testing programs, CDC released a Vital Signs publication and will hold town hall meetings, focusing on clinicians, health departments, and CBOs.

In 2018, CDC will award approximately $400 million for state, territorial, and local health departments across the United States to conduct HIV surveillance and prevention activities. These funding awards – which integrate CDC's HIV surveillance and prevention programs for the first time – represent the agency's largest single investment in HIV surveillance and prevention and will be the cornerstone of national prevention efforts for the next 5 years. This integration is intended to help health departments plan and execute more efficient, coordinated, and data-driven prevention efforts.

To maximize impact, the awards fully align CDC's HIV surveillance and prevention funding with the current geographic distribution of HIV. In keeping with CDC's High-Impact Prevention approach, these awards prioritize proven, cost-effective prevention strategies with the greatest potential to reduce new HIV infections. HIV testing and diagnosis efforts are a priority within CDC's prevention portfolio and will be informed by lessons

learned from intensive testing efforts supported by CDC's past health department funding.

CDC remains committed to helping state and local partners maximize their testing rates and minimize rates of late diagnosis. CDC will continue to invest in getting people tested and improving diagnostic methods and technologies to make testing easy, quick, and able to detect HIV early after infection.

Combating Antibiotic Resistant Bacteria [CARB]

The Committee continues to support the CARB initiative and provides $163,000,000 for this effort. The Committee recognizes the importance of addressing antibiotic-resistant bacteria through a ''One Health'' approach, simultaneously combating antibiotic resistance in human, animal, and environmental settings. The Committee encourages CDC to competitively award research activities that address aspects of antibiotic resistance related to ''One Health'' among entities, including public academic medical centers, veterinary schools with agricultural extension services, and State public health departments whose proposals are in line with CDC's strategy for addressing antibiotic resistant bacteria. CDC shall include an update on these efforts in the fiscal year 2019 CJ. (Page 60, S. Rept. 115-150)

Action taken or to be taken

CDC greatly appreciates Congress' continued support to continue public health work to combat antibiotic resistance bacteria (CARB). CDC recognizes the "One Health" concept that the health of people is connected to the health of animals and the environment, which includes resistant bacteria. To protect people, including improved response to outbreaks caused by antibiotic resistance, CDC is exploring unanswered questions about possible connections between antibiotic resistance and humans, animals, and the environment.

Since FY 2016, CDC awarded more than $24 million to researchers nationwide to explore gaps in knowledge about antibiotic resistance and potentially pilot innovative solutions in and across the healthcare, veterinary, and agriculture sectors. Some examples of CDC's work in this area include those listed on CDC's website here: 2017 projects supported by CDC's AR Solutions Initiative.

Also in FY 2017, CDC solicited research on antibiotic resistance and aquaculture. Ultimately, CDC did not receive a viable proposal for this work in response to the solicitation. However, given the importance of bridging gaps in scientific knowledge, CDC will continue to look for opportunities to support research on related topics in the future.

Also in FY 2017, through the Epidemiology and Laboratory Capacity (ELC) program, CDC continued to support the One Health Minnesota Antibiotic Stewardship Collaborative which brings together Minnesota leaders in human, animal, and environmental health to improve antibiotic use.

Lyme Disease and Related Tick-Borne Illnesses

The Committee encourages CDC to support surveillance and prevention of Lyme disease and other high-consequence tick-borne diseases in endemic areas as well as areas not yet considered endemic. CDC should work closely with States to advance the use of Integrated Pest Management for prevention and control of tick-borne diseases. The Committee encourages CDC to coordinate with NIH, NIMH, and NINDS on publishing reports that assess diagnostic advancements, methods for prevention, the state of treatment, and links between tick-borne disease and psychiatric illnesses. Further, the Committee is concerned by reports that cases of Lyme disease are under-reported and encourages CDC to re-evaluate surveillance criteria used to track cases of the disease while assisting States to more accurately evaluate prevalence. The Committee requests a report within 180 days of enactment of this act on how CDC is examining the potential misuse of the Lyme disease case definition. The report should also include updates on the implementation of the Lyme disease program, including advancing

more sensitive diagnostic tests and details of how Lyme disease funds were spent in fiscal year 2017. (Page 61, S. Rept. 115-150)

Action taken or to be taken

General information on CDC's public health programs related to Vector-borne Disease, including Lyme Disease and related tick-borne illnesses, is included in the 2019 Congressional Justification. CDC plans to submit a Report to Congress as requested.

Urinary Tract Infections

The Committee notes that UTIs are one of the most common diagnoses leading to antibiotic prescriptions. Since recent research indicates that E. coli and other leading causes of UTIs are becoming resistant to many antibiotics, the Committee encourages CDC to examine the role that nutrient dense food products, such as cranberries, may play in reducing the risk of illness and recurrent infections. The Committee also requests that CDC provide an update on this effort and actions to address antibiotic resistant pathogens linked to UTI in its fiscal year 2019 CJ. (Page 61, S. Rept. 115-150)

Action taken or to be taken

CDC agrees that innovative approaches are necessary to further control and prevent infections, improve patient care, and keep people safe.

CDC is expanding systems to better detect infections caused by resistant bacteria and emerging threats, including community infections like UTIs, across the United States. CDC is also conducting applied research to identify effective public health approaches that protect people, their microbiomes (microbial communities that live in and on us), and the effectiveness of antibiotics. CDC is working with public and private partners to identify and implement strategies to improve antibiotic use, prevent infections, enhance infection control, and advance patient care.

Vector-Borne Diseases

The Committee requests a report 180 days after enactment of this act that details how CDC worked and is continuing to work with the States most vulnerable to Zika and other vector-borne diseases. Further, the Committee encourages CDC to provide a progress update in the fiscal year 2019 CJ on meeting goals and performance indicators to prevent new infections, improve health outcomes, and reduce disease-related disparities. (Page 61, S. Rept. 115-150)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested.

CDC provided a number of updates in the fiscal year 2019 CJ on progress to detect, control, and prevent bacterial, rickettsial, and viral pathogens transmitted by ticks and insects. These updates included the following:

- In FY 2017, CDC produced and shipped reagents to facilitate more than 1,000,000 tests to diagnose bacterial, viral, and rickettsial infections, worldwide.
- CDC produced and shipped reagents for Zika diagnostic testing to 44 countries and 51 states and territories. More than 200,000 Zika tests were performed by CDC laboratories.
- Prior to the Zika outbreak, CDC was the only public health laboratory capable of testing for Zika. CDC provided extensive technical assistance and support to states, and now 49 states, Washington, D.C., and Puerto Rico have this capacity.

- CDC supported the Zika Emergency Response through application for and receipt of Emergency Use Authorizations for two Zika assays (tests): the Zika Trioplex Real-time RT-PCR and the IgM antibody assays. Before these assays were authorized for use, only CDC could test for Zika. CDC received authorization for use of these two assays for Zika within the first two months of standing up the Zika Emergency Operations Center, so that states would have access to assays to test for Zika themselves.
- CDC continues to provide diagnostic support to states and territories, with local transmission in the continental United States reported as recently as December 7, 2017.
- CDC developed and received FDA clearance for the first Rickettsia spp. diagnostic assays for clinical specimens. Having FDA-cleared PCR assays at regional and state laboratories builds capacity and allows for more rapid detection of rickettsial DNA in patients with Rocky Mountain spotted fever (RMSF), epidemic typhus, and other rickettsial infections.
- CDC is working with partners to test host-targeted Lyme disease prevention methods, including commercially-licensed rodent bait boxes.

Children in Adversity

The Committee continues to direct CDC to collaborate with USAID, PEPFAR, and the Department of Labor to ensure monitoring and evaluation is aligned for all of the Action Plan's objectives. The Committee asks that the annual Public Law 109–95 report to Congress display the amount of funding by objective to the Action Plan on Children in Adversity. (Page 64, S. Rept. 115-150)

Action taken or to be taken

CDC appreciates the support of the committee for the United States Government Action Plan on Children in Adversity. CDC supports this Action Plan, along with USAID, PEPFAR, and DOL, through the violence prevention programs Violence Against Children and Together for Girls. The annual Public Law 109–95 Report to Congress responding to this request can be found here: https://www.childreninadversity.gov/docs/default-source/annual-reports/ninth-annual-report-to-congress-the-u.s.-government-action-plan-on-children-in-adversity.pdf.

Chronic Pain

The Committee encourages CDC to analyze data collected from the chronic pain questions included in the 2017 National Health Interview Survey and to clarify the incidence and prevalence of various pain syndromes differentiated by patient age, comorbidities, socioeconomic status, race, and gender. The Committee further encourages CDC to collect data on direct and indirect costs of pain treatment and effectiveness of evidence-based treatment approaches and include this information in the fiscal year 2019 CJ. (Page 64, S. Rept. 115-150)

Action taken or to be taken

CDC collects data on chronic pain through its National Health Interview Survey (NHIS). CDC will analyze responses to chronic pain questions in the 2017 NHIS and produce estimates of the prevalence of chronic pain differentiated by respondent characteristics, as statistically appropriate. CDC cannot produce estimates of incidence, as the NHIS questions do not capture information on incidence.

CDC does not collect information on the direct and indirect costs for the treatment of chronic pain. Other HHS agencies collect cost information, but costs for the treatment of chronic pain may not be distinguished from overall costs. Some cost information can be obtained from administrative claims. However, these records may not distinguish indirect from direct costs.

CDC collaborated with the Agency for Healthcare Research and Quality to assess the evidence around nonpharmacological treatments for chronic pain. This review assessed the effectiveness of nonpharmacological treatments for five common chronic pain conditions. Evidence shows that a number of nonpharmacological interventions, including exercise, acupuncture, and cognitive-behavioral therapy may improve function or pain outcomes for one month to one year after the completion of therapy.

Electronic Cigarettes

The Committee encourages CDC to examine the recommendations from the NAM study and report to the Committee on opportunities that may exist for further research. (Page 65, S. Rept. 115-150)

Action taken or to be taken

CDC looks forward to reviewing recommendations from the NAM's report on electronic cigarettes and providing input on opportunities that may arise for future research.

High Obesity Rate Counties

The Committee remains concerned about the growing body of evidence suggesting that obesity is one of the most significant challenges facing the public health system. If this epidemic continues unabated, obesity and the many complications it causes will increase the disease burden among Americans, particularly youth. The Committee continues to include $10,000,000 to support the rural extension and outreach services grants for rural counties with an obesity prevalence of over 40 percent. The Committee expects CDC to work with State and local public health departments to support measurable outcomes through evidenced-based obesity research, intervention, and prevention programs. Grants should combine basic, clinical, and population research to better understand and treat the metabolic, medical, surgical, environmental, and societal implications of obesity in cooperation with partners that have existing outreach capacity to develop and implement educational and intervention programs. Preference should be given to States where at least 10 percent of counties meet the requirements of this program. In addition, CDC shall focus its efforts in areas of the country with the highest burden of obesity and with the comorbidities of hypertension, cardiac disease, and diabetes from county level data in the Behavioral Risk Factor Surveillance System. The Committee encourages CDC to support only activities that are supported by scientific evidence. (Page 66, S. Rept. 115-150)

Action taken or to be taken

The FY 2018 and FY 2019 President's Budget request does not include dedicated funding for High Obesity Rate Counties. States can address the public health challenge of obesity through the *America's Health* Block Grant.

Mississippi Delta Health Collaborative [MDHC]

Within the funds provided for Chronic Disease Prevention and Health Promotion, the Committee encourages CDC to build on its longstanding investment in MDHC by working to replicate the work in additional sites while maintaining the current strategy. As it has in past years, CDC shall consider using lifestyle change intervention models like the Diabetes Prevention Program; utilizing local pharmacy schools with existing community-based research programs that could focus on screenings, medication reviews, medication therapy management, comprehensive medication management, and disseminating prevention strategies; and working with communities to establish health networks to better coordinate and manage community based health initiatives. To reach the target population, the Committee encourages CDC to take advantage of rapidly evolving healthcare technology by leveraging the resources of States with recognized leadership in areas of electronic medical records, telehealth, and innovative delivery of education tools. CDC shall provide an update on these activities in the fiscal year 2019 CJ. (Page 67, S. Rept. 115-150)

Action taken or to be taken

Since 2008, CDC has funded the Mississippi Delta Health Collaborative (MDHC) to prevent and control heart disease and stroke in the Mississippi Delta Region. MDHC's financial support and technical assistance to MS Delta community stakeholders (e.g., local pharmacy schools, congregational nurses) has resulted in:

- Implementation of initiatives in 12 health care clinics, 32 churches, and 18 barbershops;
- Implementation of 34 smoke-free ordinances; acceptance of Electronic Benefits Transfer Program, or the Supplemental Nutrition Assistance Program benefits in 8 farmers' markets; and
- Implementation of 18 formal and 22 informal municipal-level joint use agreements with public facilities.

As they align with program goals, CDC considers using lifestyle intervention models like the Diabetes Prevention Program, utilizing local pharmacy schools with existing community-based research programs, and working with communities to establish health networks to better coordinate and manage community-based health initiatives. CDC also leverages best practices learned from other states or programs in the areas of electronic medical records, telehealth, and delivery of education tools. With CDC support, the Mississippi state health department has launched a quality improvement initiative to help clinics improve cardiovascular disease control using tools that include electronic health records.

The FY 2018 and FY 2019 President's Budget requests do not include dedicated funding for the Mississippi Delta Health Collaborative, but states can choose to address the public health challenge of heart disease and stroke through the America's Health Block Grant.

Stroke Prevention

The Committee encourages the Division to further focus its resources in the Stroke Belt, including the development of a comprehensive strategy to address stroke mortality and morbidity in the region. CDC shall provide an update on these efforts in the fiscal year 2019 CJ. (Page 68, S. Rept. 115-150)

Action taken or to be taken

The goal of the Paul Coverdell National Acute Stroke Program (Coverdell Program) is to develop high-quality stroke systems of care to save lives and prevent premature disability and death. Since 2004, it has reached 12 states--including states in the stroke belt--and 580 hospitals, providing improved stroke care and better outcomes for more than 623,000 stroke patients.

CDC and its grantees have made progress in stroke prevention. For example, receiving the clot-busting drug tPA greatly improves the chance of recovery for patients with the most common kind of stroke, but only if it is delivered quickly. Among CDC grantees, the percentage of patients receiving the drug within the national standard of 60 minutes rose from 47% in 2012 to 77% in 2015.

Over the years, CDC has provided support to several stroke networks, and is actively engaged in the Stroke Belt Consortium. CDC recently participated in the Stroke Belt Consortium's national meeting where stakeholders came together to share best practices and potential action within the stroke belt.

CDC has also produced a number of tools that can benefit the states of the stroke belt. CDC's Strategies from the Field tool shares how funded states have worked to meet their program goals. Also, to build state competency to engage in stroke prevention, CDC released a Roadmap for State Program Planning. CDC's Interactive Atlas of Heart Disease and Stroke, maps, and other tools help states in the stroke belt and nationwide understand the burden of stroke within their borders. CDC also highlighted ways to prevent stroke deaths in a CDC Vital Signs release in September 2017.

The FY 2018 and FY 2019 President's Budget requests do not include dedicated funding for Stroke Prevention, but states can choose to address the public health challenge of stroke through the *America's Health* Block Grant.

WISEWOMAN

The Committee recognizes the critical role screening and referral programs play in reducing cardiovascular disease and directs CDC to explore innovative approaches to expand the number of women served through WISEWOMAN and report the results to the Committee no later than September 30, 2018. (Page 68, S. Rept. 115-150)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested.

Congenital Heart Disease [CHD]

The Committee commends NCBDDD for its leadership in addressing CHD and adult CHD surveillance efforts and requests a report in the fiscal year 2019 CJ on CDC surveillance and research efforts regarding CHD across the lifespan, age-specific prevalence, and factors associated with those patients who may have dropped out of appropriate specialty care. (Page 69, S. Rept. 115-150)

Action taken or to be taken

CDC appreciates the Committee's support to improve the lives of people with Congenital Heart Disease (CHD). General information on CDC's CHD work is included in the 2019 Congressional Justification. Additional details on the surveillance efforts are below.

Surveillance of adolescents and adults with CHD:

- In FY 2018, CDC will continue analyzing data from the three initial pilot sites: Emory University, Massachusetts Department of Public Health, and the New York State Department of Health. We anticipate publishing findings in FY 2018 on: estimated prevalence, other health conditions, and healthcare use among adolescents, adults, and pregnant women with CHD; and lessons learned from the surveillance study regarding linking data from multiple electronic sources on people with CHD
- In FY 2018, CDC will continue to work on the follow-up project that built on lessons learned from the pilot and includes more surveillance sites (Emory University, Duke University, University of Colorado-Denver, New York State Department of Health, and the University of Utah), additional data sources, and three more years of data. All sites are cleaning and linking data, and two sites are conducting a survey of parents of adolescents with CHD to assess barriers and challenges with regard to transitioning from pediatric to adult care. Understanding health issues and needs at all ages is vital to improving the lives of individuals with these conditions. CDC will share findings though publications and presentations, with families, healthcare providers, and partner groups, to help improve to lives of people with CHD.

In addition, CDC and its partners--the University of Arizona and Arkansas Center for Birth Defects Research and Prevention--continue recruiting for Congenital Heart Survey To Recognize Outcomes, Needs, and well-being (CHSTRONG). CHSTRONG assesses health, social and educational status, and quality of life among young adults with CHD who were identified through birth defects surveillance systems. Recruitment is ongoing through 2018. To date, CDC has received over 1,100 survey responses.

Alzheimer's Disease and Dementia

The Committee is aware of recent peer-reviewed studies suggesting that more than 500,000 U.S. deaths each year are attributable to Alzheimer's disease and dementia, far in excess of the deaths reported by the Center

each year. Such statistics would elevate Alzheimer's disease from the sixth leading cause of death to the third leading cause of death. The Committee looks forward to receiving CDC recommendations on ways to ensure the accuracy and completeness of measurements of the Alzheimer's disease and dementia death rate and to develop a consensus on the mortality burden of the disease.(Page 71, S. Rept. 115-150)

Action taken or to be taken

CDC appreciates the Committee's interest in this area. As noted in the "CDC Report to Congress: Alzheimer's Disease and Dementia Reporting" (requested as part of CDC's FY 2016 Appropriation and transmitted to Congress on August 11, 2017), CDC continues to promote the importance of accurate and complete reporting of all deaths, including those from Alzheimer's Disease (AD) and other forms of dementia. Because statistical data derived from death certificates is only as accurate as the information on the certificate, CDC is exploring methods, tools, and training to better educate physicians on death reporting to ensure completeness, accuracy, and promptness in reporting.

CDC will also collaborate with the efforts of the Advisory Council on Alzheimer's Research, Care, and Services in the U.S. Department of Health and Human Services as they develop priority actions and recommendations. The Advisory Council has recently included an examination of diagnostic codes and coding practices for AD and other forms of dementia for the Department as a goal for tracking progress and improvement. CDC will work with the Council to improve mortality statistics.

Amyotrophic Lateral Sclerosis [ALS] Registry

The Committee directs CDC to review the ALS registry and submit a report to the Committees on Appropriations of the House of Representatives and Senate within one year of enactment of this act to determine the compliance of the ALS registry with Congressional intent as laid out in Public Law 110–373. The report should include the cost of maintaining the registry, a review of how the National ALS registry interacts with State, local, and Federal registries to build upon existing data, and recommendations on how to improve the surveillance quality of the registry. (Page 73, S. Rept. 115-150)

Action taken or to be taken

CDC plans to submit a Report to Congress as requested. The FY 2018 and FY 2019 President's Budget requests do not include funding for the ALS registry.

Environmental Health Activities

The Committee directs CDC to continue to help state and local health departments plan for these public health threats and to focus on protecting the most vulnerable individuals and communities. (Page 73, S. Rept. 115-150)

Action taken or to be taken

CDC programs funded under Environmental Health Activities monitor environmentally related diseases; respond to urgent public health threats; provide training and guidance for the nation's environmental health workforce; assist in emergency preparedness and response efforts; and support grants that improve state and local capacity. CDC will continue to help state and local health departments plan for these public health threats with particular attention to the most vulnerable individuals and communities.

Hormone Standardization

The Committee requests a report in the fiscal year 2019 CJ outlining what is necessary for the agency to increase the standardization of clinical laboratory testing to help prevent misdiagnoses and reduce unnecessary health expenses. (Page 73, S. Rept. 115-150)

Action taken or to be taken

CDC's laboratory standardization programs harmonize tests for cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, and triglycerides. In addition, CDC has pilot programs for vitamin D, testosterone, and estradiol. In FY 2019, CDC expects to continue these programs, which currently reach over 1,000 laboratories and test manufacturers.

Developing reference quality methods to harmonize clinical tests requires substantial expertise and effort. If additional resources became available, CDC could develop reference quality methods for additional, high priority clinical tests, including those for free testosterone, free thyroid hormones, glucose, thyroid stimulating hormone, progesterone, and antimullerian hormone. CDC could use these methods to assign target levels to blood, serum, and urine reference materials, and provide these materials to private laboratories and manufacturers to improve the accuracy and precision of their measurements. CDC could monitor performance of laboratories and manufacturers multiple times per year to help ensure results remain within acceptable accuracy and precision tolerances. These efforts would help better diagnose, treat, and prevent diseases such as chronic kidney disease, polycystic ovary syndrome, hypothyroidism, and osteoporosis and more effectively prevent complications during pregnancy and child development.

In addition, CDC could include more manufacturers, hospital laboratories, and clinical laboratories in CDC's programs for testosterone, estradiol, and vitamin D—expanding the number of improved tests in the United States. CDC could also work with stakeholders, including professional organizations, to provide educational materials, new product development, scientific consultation, and guidelines that would substantially advance the broad use of high quality, harmonized laboratory tests.

CDC would expect these efforts to help reduce diagnostic and treatment errors, lower healthcare costs by reducing repeat testing and unneeded follow-up procedures, increase the value of electronic health records, and improve the many clinical diagnostic and treatment guidelines based on laboratory measurements.

Lead Poisoning

The Committee notes that the fiscal year 2017 Omnibus provided an additional $35,000,000 in multi-year lead poisoning prevention efforts for a lead exposure registry and an advisory committee. CDC is directed to provide a status update on these activities in the fiscal year 2019 CJ. (Page 73, S. Rept. 115-150)

Action taken or to be taken

The FY 2017 Omnibus bill provided funding for enhancing support for CDC's Childhood Lead Poisoning Prevention Program and allocated funding for a lead exposure registry and an advisory committee. With $15 million over two years, CDC began to rebuild capacity and improve surveillance efforts to detect elevated blood lead levels in children under 6. The one-time, 2-year funding allowed support for an additional 14 grantees in FY 2017 and FY 2018, serving approximately 7 million children under age 6.

The FY 2017 Omnibus also provided $20 million (over FY 2017 to FY 2020) to implement a lead exposure registry. In FY 2017, CDC used the funds to award $3.2 million to Michigan State University to develop and administer the Flint Lead Exposure Registry. This funding was provided for the first year of a 4-year grant, with a total award of $14.4 million. CDC is also working to establish a Lead Exposure and Prevention Advisory Committee (LEPAC). To date, CDC has drafted the charter and is awaiting approval to establish the LEPAC via the Federal Advisory Committee Act (FACA).

Newborn Screening

The Committee requests CDC provide an update in the fiscal year 2019 CJ on actions planned and on-going to work with States on ways to ensure screening of infants for diseases for which there is a preventable and/or

effective treatment. Further, the update should note what steps can be taken to encourage States to adopt and implement new Recommended Uniform Screening Panel conditions within one year of their addition. (Page 73, S. Rept. 115-150)

Action taken or to be taken

CDC's Newborn Screening Quality Assurance Program works hand-in-hand with state laboratories as they implement new tests and conduct ongoing laboratory testing for newborn screening. Continuing over 35 years of newborn screening laboratory leadership, CDC develops tests unique to population-based screening and provides training, technical assistance, and quality assurance materials that help ensure accurate test results for current and anticipated additions to the Recommended Uniform Screening Panel (RUSP). CDC's services cover the recent RUSP additions, Pompe Disease, Mucopolysaccharidosis Type I, and X-linked Adrenoleukodystrophy, and CDC is actively working to incorporate services for several probable additions.

CDC also plays a critical role in the success of state pilot studies and nationwide implementation of severe combined immunodeficiency (SCID), the first new condition added to the RUSP. Since 2008, CDC has provided ongoing leadership, technical expertise, and funding to states for laboratory infrastructure to implement screening. To date, CDC-funded programs have screened more than two million babies for SCID and serve as models for other states implementing population-based testing.

CDC recognizes that states and territories need additional support implementing testing for other treatable newborn diseases. CDC plans to help address this by working with states to incorporate new screening tests and provides an update in the FY 2019 President's Budget on these activities. States must address many obstacles when establishing new screening tests, so adopting and implementing new RUSP conditions within one year would be challenging. Conditions are frequently added to the RUSP, and every condition added to state screening panels requires essential laboratory infrastructure, staff expertise, and quality systems to assure implementation of robust and reliable laboratory testing processes that ensure accurate screening for all newborns.

Biosurveillance Program

The Committee instructs CDC to begin using data from the Enhanced State Surveillance of Opioid-Involved Morbidity and Mortality program to provide such forecasts that public health officials can use to intervene and prevent overdoses. CDC should focus on States experiencing the highest rates of opioid related overdosing then expand into a national system. (Page 74, S. Rept. 115-150)

Action taken or to be taken

CDC appreciates the Committee's support of the Enhanced State Opioid Overdose Surveillance (ESOOS) program. In 2016, CDC funded 12 states to: 1) Improve the timeliness of reporting of nonfatal opioid overdoses using Emergency Department (ED) and Emergency Medical Services (EMS) data; 2) Improve the timeliness and comprehensiveness of fatal opioid overdose data and associated risk factors so that these data can be used to inform public health response tactics within and across states; and 3) Disseminate findings to stakeholders to support prevention efforts.

With the increase in funds appropriated to CDC in Fiscal Year 2017, CDC was able to expand the ESOOS program to fund 32 states and Washington, D.C. CDC also was able to provide supplemental funds to all ESOOS-funded states, with the requirement that a minimum of 60% of the supplemental funds be directed to support comprehensive toxicology testing of opioid-involved deaths through medical examiner/coroner offices. The first report published using ESOOS data is available at https://www.cdc.gov/mmwr/volumes/66/wr/mm6643e1.htm?s_cid=mm6643e1_w.

Rape Prevention

The Committee recognizes that 25 percent of rape prevention programs currently have a wait time of over a month. The Committee therefore has provided an increase of $5,000,000 for CDC's rape prevention and education program and directs that at least 75 percent of the program's funds go to States for State and local prevention activities. (Page 75, S. Rept. 115-150)

Action taken or to be taken

CDC appreciates the Committee's support of the Rape Prevention and Education (RPE) program. CDC's RPE program funds state and territorial health departments in all 50 states, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands, and the Commonwealth of Northern Mariana Islands to support state and community efforts to prevent sexual violence using the best available evidence. Grantees use CDC funding to implement state- and territory-wide sexual violence prevention plans, implement and evaluate sexual violence prevention programs, and address local sexual violence prevention needs. CDC will continue to support states and territories to enhance their important prevention activities and will allocate resources to state and territorial health department grantees as directed.

Soil Transmitted Helminth and Related ''Diseases of Poverty'' [STH]

STH infections when found in the United States are most frequently seen in poverty stricken, rural populations. Surveillance studies through school-based clinics have been successful in providing safe treatments and public health interventions to reduce infection burden, but in some areas with high STH-infection, there is no surveillance or remediation effort underway. Therefore, within the funds provided, the Committee includes $1,500,000 to CDC for surveillance, source remediation, and clinical care aimed at reducing STH-infection in an area not being addressed by current CDC outreach. The clinical care effort shall be led by an academic medical center with collaboration from State health agencies, universities, and public health entities and shall be located in a rural, agrarian area with high incidence of STH-infection, poverty, and chronic disease, especially among children. (Page 77, S. Rept. 115-150)

Action taken or to be taken

Parasitic infections occur in the United States and often go undiagnosed and untreated, largely because of a lack of awareness. Limited studies conducted in the United States over the past decade suggest there may be geographic areas where STH infection exists. Further studies are needed to validate if any ongoing transmission is present. If additional funding is provided, CDC will conduct surveillance assessments in one or more rural areas with historically high prevalence that are considered to still be at risk for ongoing STH transmission to map STH infections. Where ongoing transmission is identified, CDC will collaborate with state health agencies, universities, and public health entities to provide treatment and planning for remediation and control activities.

Emergency Preparedness

The Committee continues to request detailed information on how PHEP funding is distributed at the local level by States. CDC is encouraged to provide in the fiscal year 2019 CJ an update on how much of the Federal PHEP funding is being allocated to local health departments and what basis or formula each State is using to make such allocations. (Page 78, S. Rept. 115-150)

Action taken or to be taken

States use a variety of criteria to determine how to allocate PHEP funds to local health departments, and some may consider multiple factors in deciding allocations. Most states (68%) use population as a key consideration. As with the national PHEP funding strategy, most states use population in their planning to gauge risk for public health incidents or emergencies. Other considerations used by states to award funds include:

- Jurisdiction-specific projects

- Public health preparedness capabilities
- Reimbursement needs
- Geography

According to funding applications submitted in April 2017, PHEP recipients planned to allocate 41.1%—or $251,576,322—of their FY 2017 funding ($611,750,000) to local health departments. This includes dedicated Cities Readiness Initiative (CRI) funding for medical countermeasure planning and operations. States directly allocate the majority of their $51,998,750 in CRI funding to their local CRI planning jurisdictions.

Strategic National Stockpile

The Committee encourages CDC to evaluate the latest approved advances in influenza prevention and antiviral treatment for inclusion in the SNS in preparation for pandemic influenza. Further, the Committee encourages BARDA and CDC to better coordinate the handoff of new countermeasures being purchased for the Strategic National Stockpile and, as appropriate, maintain BARDA involvement to negotiate technical details of future procurement. The Committee requests a report within 90 days of enactment of this act detailing the number of potential FDA-approved MCMs that will be needed in the SNS over the next 3 fiscal years (including new products or products currently in the SNS that will require replenishment), and the anticipated costs to purchase these products while maintaining current SNS products. (Page 78, S. Rept. 115-150)

Action taken or to be taken

The FY 2019 President's Budget request reflects the transfer of Strategic National Stockpile to the HHS Office of the Assistant Secretary for Preparedness and Response. However, CDC will still participate in the Public Health Emergency Medical Countermeasures Enterprise (PHEMCE) process, and will continue work to evaluate the latest approved advances in influenza prevention and antiviral treatment for inclusion in the SNS in preparation for pandemic influenza.

NIOSH Facility

The Committee is aware that CDC plans to consolidate the NIOSH Cincinnati research facilities, which are more than 50 years old, into one modern laboratory in order to reduce operational costs and strengthen scientific collaboration. The Committee understands that CDC plans to support this facility replacement through the Department's Nonrecurring Expense Fund. The Secretary and CDC are directed to prioritize obligations for this facility and obligate such funds as quickly as possible in fiscal year 2018. (Page 79, S. Rept. 115-150)

Action taken or to be taken

The FY 2019 President's Budget request proposes to consolidate occupational safety and health activities into the National Institutes of Health. CDC provides an interim update on the Cincinnati consolidation project in its FY 2019 CJ Buildings and Facilities narrative.

Replacement of the Lake Lynn Experimental Mine and Laboratory

The Secretary is directed to provide quarterly reports to the Committees on Appropriations of the House of Representatives and Senate detailing activities to replace the Lake Lynn Laboratory. The Committee continues to support CDC efforts to find a replacement facility. (Page 79, S. Rept. 115-150)

Action taken or to be taken

CDC appreciates the Committee's interest in replacing the Lake Lynn Laboratory Facility. CDC plans to submit a report to Congress on the Underground Mining Replacement facility as requested.