

IMMUNIZATION AND RESPIRATORY DISEASES

| (dollars in millions) | FY 2015 Final | FY 2016 Enacted | FY 2017 President's Budget | FY 2017 +/- FY 2016 |
|---|------------------|------------------------|----------------------------------|---------------------------|
| Budget Authority | \$573.105 | \$459.055 | \$411.716 | -\$47.339 |
| ACA/PPHF | \$210.300 | \$324.350 | \$336.350 | +\$12.000 |
| PHSSEF | \$15.000 | \$15.000 | \$0.000 | -\$15.000 |
| Total Request | \$798.405 | \$798.405 | \$748.066 | -\$50.339 |
| FTEs | 652 | 652 | 652 | 0 |
| Immunization Program Level | \$610.847 | \$610.847 | \$560.508 | -\$50.339 |
| -Immunization Program - BA | \$387.683 | \$273.633 ¹ | \$211.294 | -\$75.203 |
| -National Immunization Survey - BA | \$12.864 | 12.864 | \$12.864 | +\$12.864 |
| -Immunization Program - PPHF | \$210.300 | \$324.350 | \$336.350 | +\$12.000 |
| Influenza/Influenza Planning and Response | \$187.558 | \$187.558 | \$187.558 | \$0.000 |
| -Influenza Planning and Response - BA | \$172.558 | \$172.558 | \$187.558 | +15.000 |
| -Influenza Planning and Response -PHSSEF (non-add) | \$15.000 | \$15.000 | \$0.000 | -\$15.000 |

¹ FY 2016 is comparably adjusted to reflect FY 2017 proposed Immunization budget structure.

Summary

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 goal to protect Americans from infectious diseases.

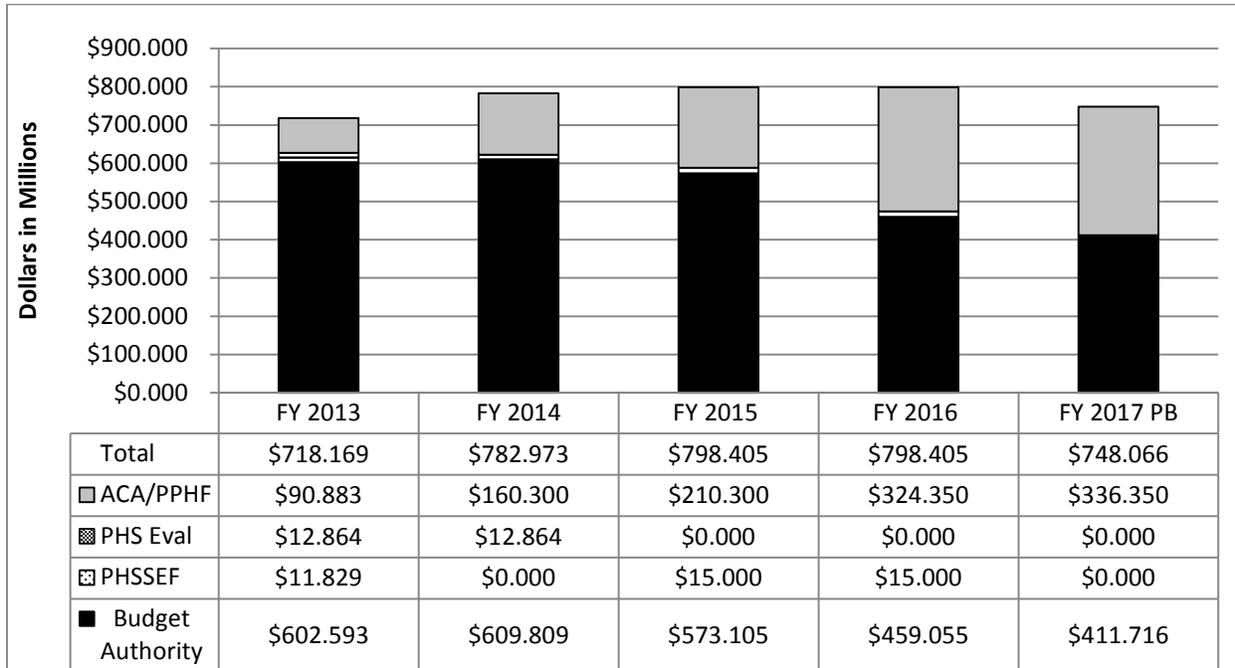
Through the discretionary Immunization Program and mandatory Vaccines for Children (VFC) Program, CDC improves access to immunization services for uninsured and underinsured populations in the United States and supports the scientific evidence base for vaccine policy and practices. CDC also provides critical epidemiology and laboratory capacity to detect, prevent, and respond to vaccine-preventable, respiratory, and related infectious disease threats as well as preparedness planning for pandemic influenza.

CDC's FY 2017 request of **\$748,066,000** for immunization and respiratory diseases, including \$336,350,000 from the Affordable Care Act Prevention and Public Health Fund, is \$50,339,000 below the FY 2016 Enacted level. The reduction to the 317 Immunization Program reflects increased insurance coverage for immunization services through public and private health insurance expansion.

Performance Highlights

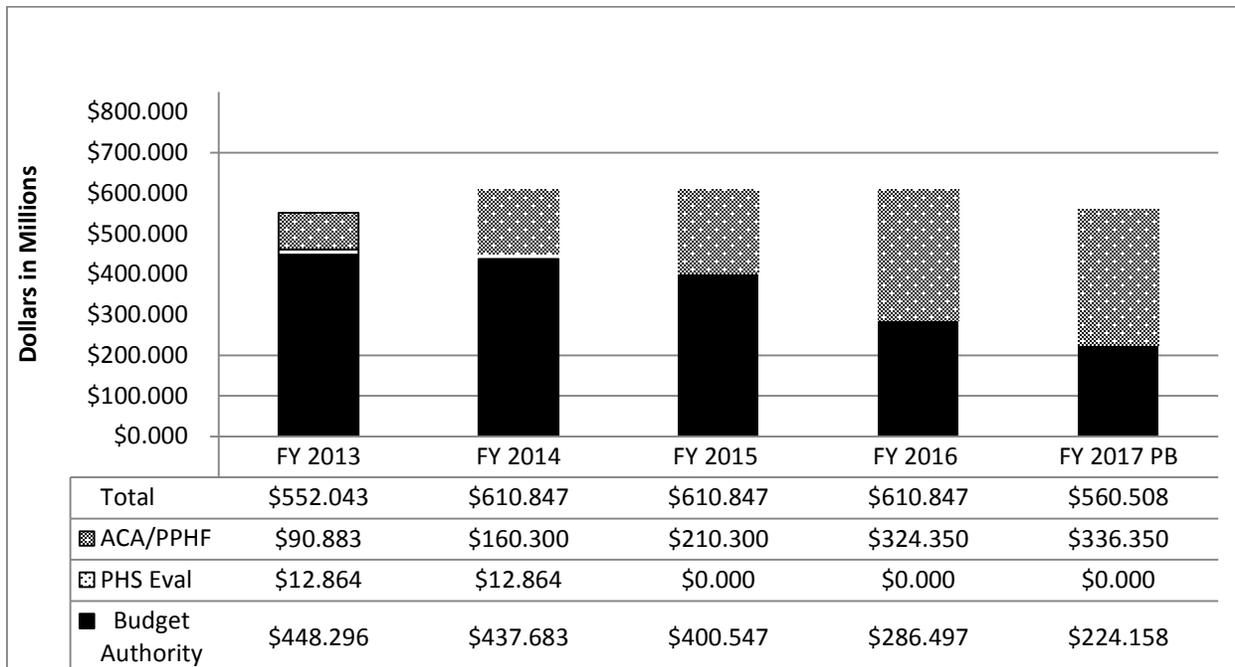
- CDC estimates that vaccination of children born between 1994 and 2013 will prevent 322 million illnesses; will help avoid 732,000 deaths; and will save nearly \$1.4 trillion in total societal costs.
- In August 2015, CDC developed and published new Advisory Committee on Immunization Practices (ACIP) recommendations for use of PCV13/PPSV23 pneumococcal vaccines for adults greater than 65 years of age in the United States.
- CDC achieved 24% zoster vaccine coverage in 2013 to avert an estimated 43,000 cases of herpes zoster.

Immunization and Respiratory Diseases Funding History¹



¹ FY 2013 is comparably adjusted to reflect the FY 2014 BSS transfer to implement the Working Capital Fund.

Immunization Program Funding History¹



¹ FY 2013 is comparably adjusted to reflect the FY 2014 BSS transfer to implement the Working Capital Fund.

Immunization Program Funding History^{1,2}

| Immunization Program ^{1,2} | |
|-------------------------------------|--------------------------|
| Fiscal Year | Dollars (in millions) |
| 2007 | \$512.804 |
| 2008 | \$527.359 |
| 2009 | \$557.359 |
| 2009 (ARRA) | \$300.000 |
| 2010 | \$561.459 |
| 2011 | \$488.576 |
| 2011 (ACA/PPHF) | \$100.000 |
| 2012 | \$452.215 |
| 2012 (ACA/PPHF) | \$190.000 |
| 2013 | \$461.160 |
| 2013 (ACA/PPHF) | \$90.883 |
| 2014 | \$450.547 |
| 2014 (ACA/PPHF) | \$160.300 |
| 2015 | \$400.547 |
| 2015 (ACA/PPHF) | \$210.300 |
| 2016 | \$286.497 |
| 2016 (ACA/PPHF) | \$324.350 |

¹ FY 2012 and FY 2013 are comparably adjusted to reflect the FY 2014 BSS transfer to implement the Working Capital Fund.

Immunization Program Budget Request

| (dollars in millions) | FY 2015 Final | FY 2016 Enacted | FY 2017 President's Budget | FY 2017 +/- FY 2016 |
|---------------------------------|------------------|----------------------|----------------------------------|---------------------------|
| Budget Authority | \$387.683 | 273.633 ¹ | \$211.294 | -\$75.203 |
| National Immunization Survey | \$12.864 | 12.864 | \$12.864 | +\$12.864 |
| ACA/PPHF | \$210.300 | \$324.350 | \$336.350 | +\$12.000 |
| Total | \$610.847 | \$610.847 | \$560.508 | -\$50.339 |

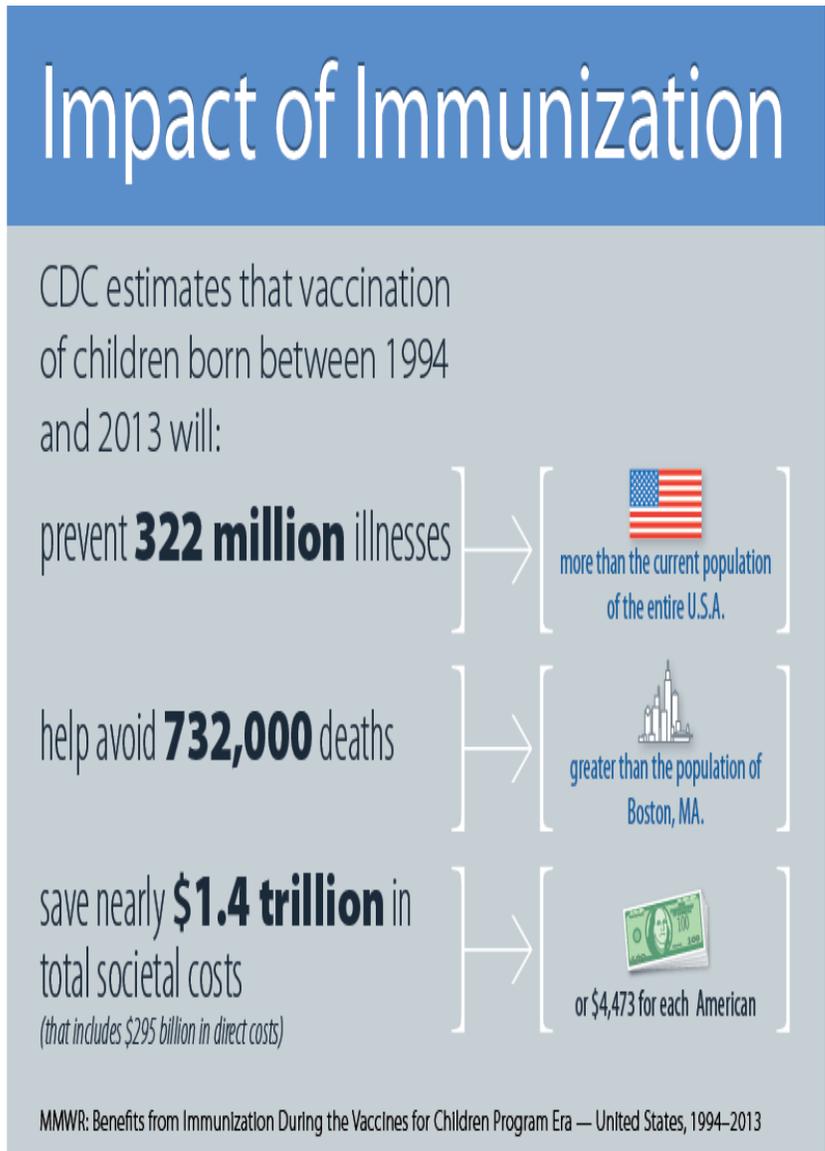
¹ FY 2016 is comparably adjusted to reflect FY 2017 proposed Immunization budget structure.

Overview

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 funds to support the essential 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 a 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 and vulnerable 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 Affordable Care Act health insurance-related provisions have improved access to immunization services by requiring new private health plans and most public insurance to cover routinely recommended vaccines without cost-sharing. However, these health insurance provisions do not



address the public health functions that must be in place to ensure safe and effective national immunization policies and programs, making the discretionary Immunization Program critical in FY 2017 and beyond. These public health functions include providing a safety net for those who cannot otherwise access immunization services, managing vaccine shortages, monitoring the safety and effectiveness of vaccines and vaccine policies, 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 2017 request of **\$560,508,000** for the Immunization Program, including \$336,350,000 from the Affordable Care Act Prevention and Public Health Fund, is \$50,339,000 below the FY 2016 Enacted level. This funding will be used to continue to support the immunization program priorities.

For FY 2017, CDC's priorities for the discretionary Immunization Program are to:

- Preserve core public health immunization infrastructure at the local, state, and federal levels
- Maintain an adequate amount of vaccine purchase to provide a vaccination safety net for uninsured adults, and for response to VPD outbreaks and other vaccine urgent needs
- Make strategic investments to enhance the immunization infrastructure and evidence base and to improve efficiency

Preserving Core Public Health Immunization Infrastructure

The discretionary Immunization Program is responsible for the essential public health workforce and systems at the national, state, and local levels that protect all Americans, regardless of health insurance status, from disability and death from VPDs.

CDC conducts scientific studies that provide the evidence base for national immunization policy, including assessing the burden of disease, vaccine effectiveness and safety, economic analyses, and program feasibility. For example, CDC's vaccine effectiveness research provided critical scientific evidence of waning immunity that informed the Advisory Committee on Immunization Practices' (ACIP) recommendation for a booster dose of meningococcal conjugate vaccine at age 16 to assure protection through the high-risk college years.

In addition, CDC collects, analyzes, and reports scientific data about vaccines as they are used in real-world settings and with larger populations to ensure the effectiveness and safety of our national vaccine programs and policies and to inform policy and program changes. This includes:

- Implementing vaccine safety priority studies by strengthening vaccine safety surveillance for rare vaccine adverse events
- Improving adverse-event reporting through electronic reporting
- Developing vaccine safety profiles for each newly licensed vaccine in collaboration with other federal agencies

CDC's National Immunization Survey (NIS) is essential to assessing national progress, documenting programmatic achievements, and identifying disparities in immunization coverage rates. The 2014 NIS-Teen data, for example, showed there were modest increases in vaccination coverage among U.S. adolescents between the ages of 13 and 17 years for all vaccines routinely recommended for preteens and teens. However, progress is occurring at an unacceptably slow pace for human papillomavirus (HPV) vaccination, identifying the need for targeted efforts to improve HPV vaccination coverage among adolescent girls.

Based on this information, CDC provided funding to support several activities focused on improving HPV vaccination coverage. These included: 22 immunization programs funded to use their Immunization Information

Systems (IIS) for reminder/recall for girls 11 to 18 years of age and to conduct a comprehensive communications campaign (one group of 11 in 2013 and another group of 11 in 2014); an organization funded to develop and maintain a national network comprised of cancer-prevention organizations that have the capacity to engage clinical and immunization partners at a national, regional, state, tribal, territorial, jurisdictional, and local level; and professional medical organizations funded to strengthen the clinician recommendation of HPV vaccine by direct outreach and education around HPV vaccine to their members and audiences. In FY 2017, CDC will continue to fund the NIS to monitor progress and inform programmatic strategies.

CDC supports science-based communication campaigns and other efforts to convey the benefits of vaccines to the public to aid individuals in making informed vaccine decisions to protect themselves and their loved ones. CDC also conducts outreach to educate healthcare providers about current immunization policy and clinical best practices to help them protect their patients and communities from VPDs. CDC developed and will maintain a [dynamic provider toolkit](#)² for conversations with parents about vaccination that includes evidence-based strategies, print materials, and web-based tools.

In FY 2017, CDC will 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. Funds will also be used to respond 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

For example, from January 1 to July 24, 2015, CDC received reports of 183 measles cases from 24 states in the United States. On July 2, 2015, Washington State Department of Health confirmed a measles-related death. The last reported measles infection that resulted in death in the United States was in 2003. CDC provided epidemiology and laboratory support including advanced molecular diagnostic testing for measles. CDC is prioritizing activities to better define the locations and size of unvaccinated populations that pose high risks of sustaining large measles outbreaks that may threaten maintenance of measles elimination in the United States.

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. These populations have decreased as implementation of expanded health insurance coverage provisions continues; however, there continues to be a need for discretionary vaccines to serve uninsured adults and to provide rapid vaccination response to disease outbreaks and other urgent public health needs. It will be important to maintain a safety net for immunization services. The discretionary Immunization Program is also critical because, unlike the federal VFC Program which has very specific eligibility requirements, discretionary Immunization Program vaccine can be used to vaccinate non-VFC-eligible populations in a public health emergency. For example, 317 funds were used to purchase meningitis B vaccine doses under the Emergency Use Authorization in 2014. Additionally, 317 funds were used to purchase meningitis B vaccine doses for the stockpile in 2015.

In FY 2017, CDC will work collaboratively with its awardees and partners to sustain record-high childhood immunization coverage rates and increase immunization coverage rates for children and adults by improving access to immunizations. Specifically, CDC will work to establish access points at complementary venues such as

² <http://www.cdc.gov/vaccines/hcp.htm>

schools, pharmacies, and retail-based clinics; expand the network of VFC providers through recruitment efforts; purchase and deliver vaccine for at-risk populations; and ensure those with insurance have access to immunization services through an in-network provider.

Making Strategic Investments

In some communities, such as rural areas, health departments serve as a critical access point. Since 2009, CDC has invested funding to expand immunization infrastructure to assist public health clinics that serve fully-insured patients with billing for immunization services. This effort preserves access to life-saving immunizations for fully-insured populations. The purpose of billing is to expand access for fully-insured individuals in areas where there is not adequate in-network provider coverage. CDC has supported 38 awardees in developing and/or implementing billing systems in targeted areas within their jurisdictions through a separate FOA. CDC continues to support billing activities through routine cooperative agreement funds for all awardees. In FY 2017, the Immunization Program will collaborate with other areas of CDC interested in billing and other public health infrastructure improvements needed in the evolving health care environment. However, while expanded billing capacity in public health departments may help to maintain and improve access to immunization services for the fully-insured, it does not replace the need for discretionary Immunization Program vaccines that provide a critical public health safety net for vaccinating the uninsured and responding to VPD outbreaks and other public health emergencies.

Anticipating the evolving role of public health, CDC has strategically directed immunization resources to prepare for the new healthcare environment. CDC made investments in Immunization Information Systems (IIS) that inform and support clinical decision-making and allow interfacing with electronic health records (EHRs) and vaccine ordering systems through a competitive process that provided funds to 56 of the 64 immunization awardees. This helped more than 95% of these 56 CDC awardees reach full compliance with Health Level Seven (HL7) messaging standards for immunization data transactions. In FY 2017, the Immunization Program will provide funding to immunization awardees and support scientific and programmatic expertise to further develop, enhance, and maintain IIS capable of identifying individuals in need of immunization, measuring vaccination coverage rates, producing reminder and recall notices, and interfacing with EHRs. CDC's immunization services program and the public health informatics program collaborate to support Immunization Program awardees in enhancing their IIS to be compliant with standards and requirements set by the national Electronic Health Records – Meaningful Use (EHR-MU) Program.

Immunization Summary¹

| (dollars in millions) | FY 2015 Final | FY 2016 Enacted | FY 2017 PB | FY 2017 +/- FY 2016 |
|--|--------------------------|----------------------------|-----------------------|------------------------------------|
| Immunization Infrastructure ¹ | \$241.080 | \$241.080 | \$241.080 | \$0.000 |
| Vaccine Purchase ¹ | \$123.480 | \$123.480 | \$85.980 | -\$37.500 |
| Extramural Program Operations | \$188.824 | \$188.824 | \$176.698 | -\$12.126 |
| Intramural Program Operations | \$57.463 | \$57.463 | \$56.750 | -\$0.713 |
| Total | \$610.847 | \$610.847 | \$560.508 | -\$50.339 |

¹ See Immunization Grants for more information.

Advancing Public Health Immunization Priorities

| Funding Category | FY 2017 Immunization Program Funding |
|-------------------------------|---|
| Immunization Infrastructure | Will be awarded to support essential public health immunization workforce and systems at the state and local levels. Funds will be used 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 VPD outbreaks. These awards include core infrastructure/operations funding that goes to all awardees. |
| Vaccine Purchase | Will be 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 VPD outbreaks. |
| Extramural Program Operations | Will support 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; payor of last resort; public awareness campaigns and resources; and provider education and tools. |
| Intramural Program Operations | Will provide national public health expertise in immunization and VPDs to support 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 2017, 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. Through population-based awards and collaboration, the discretionary Immunization Program established 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 provide its 64 awardees with direct assistance for vaccine purchased from the federal contracts. As part of the new five-year funding cycle that began in FY 2013, CDC adopted a vaccine use policy that Immunization Program-purchased vaccines cannot be used for routine vaccination of fully insured individuals. Assuring that public funds are not subsidizing insured benefits allows CDC to target its resources more effectively to meet public health priorities. In alignment with the vaccine use policy and to assure that public funds are not subsidizing insured benefits, the FY 2017 Budget continues to allocate vaccine direct assistance based on the estimated number of uninsured adults within each awardee’s jurisdiction. For each fiscal year’s allocation of vaccine direct assistance to state and city awardees, CDC uses the most currently available U.S. Census data for uninsured adults ages 19 to 64 years as its base population and allocates vaccine to each awardee based on their proportion of the uninsured adult population, as done since FY 2014. The allocation to awardees is adjusted as necessary to minimize large fluctuations—supporting an orderly transition to the new vaccine allocation formula, limiting disruption to the Immunization Program, and ensuring that all awardees receive some amount of discretionary vaccine to provide a safety net. CDC monitors spend plans developed by awardees, and makes further adjustments as needed throughout the year so that no vaccine goes to waste. The allocation of vaccine to the five U.S. Territories and three Freely Associated States was not changed.

CDC provides national public health expertise in VPDs that supports the 64 awardees, including expertise in:

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

Immunization Cooperative Agreements^{1, 2, 3}

| | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 | FY 2017 |
|-----------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| (dollars in millions) | Actual | Final | Final | Enacted | PB | FY 2016 |
| Number of Awards | 64 | 64 | 64 | 64 | 64 | 0 |
| - New Awards | 0 | 0 | 0 | 0 | 0 | 0 |
| - Continuing | 64 | 64 | 64 | 64 | 64 | 0 |
| Award | | | | | | |
| Average Award | \$5.315 | \$4.350 | \$5.778 | \$5.778 | \$4.991 | \$0.000 |
| Range of Awards | | | \$0.609– | \$0.609– | \$0.539– | N/A |
| | \$37.773 | \$26.600 | \$32.983 | \$32.983 | \$30.018 | |
| Total Awards | \$340.138 | \$278.402 | \$369.767 | \$369.767 | \$319.428 | -\$50.339 |

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

²Immunization operations awards and vaccine direct assistance are included in the table. In FY 2013, CDC awarded a new five-year cooperative agreement for Immunization Program funding.

³These funds are awarded by formula.

Influenza Planning and Response Budget Request

| (dollars in millions) | FY 2015 Final | FY 2016 Enacted | FY 2017 President's Budget | FY 2017 +/- FY 2016 |
|-----------------------|------------------|--------------------|----------------------------------|---------------------------|
| Budget Authority | \$172.558 | \$172.558 | \$187.558 | +\$15.000 |
| PHSSEF | \$15.000 | \$15.000 | \$0.000 | -\$15.000 |
| Total | \$187.558 | \$187.558 | \$187.558 | \$0.000 |

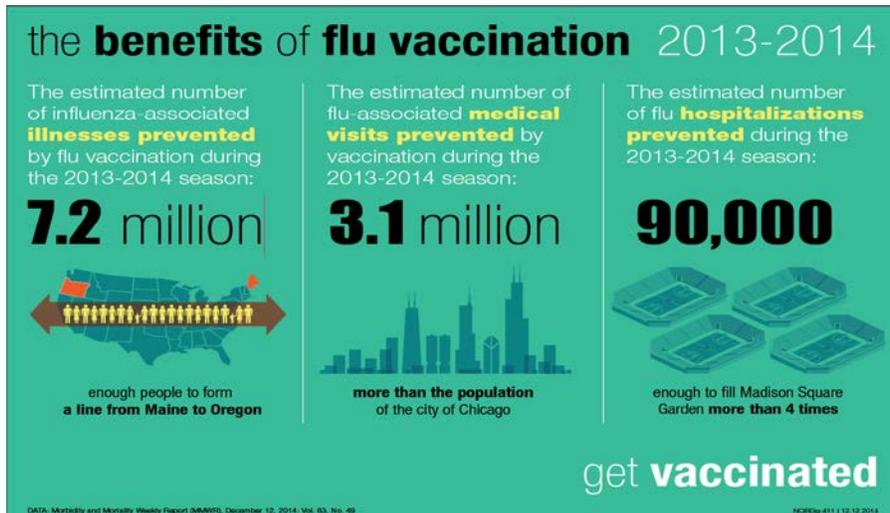
Overview

CDC's influenza planning and response activities ensure a comprehensive response for seasonal influenza as well as the ability to respond to an influenza pandemic. CDC's influenza program works to detect, respond to, and prevent influenza disease that can cause mild to severe 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. Over a period of 30 years, between 1976 and 2006, annual estimates of influenza-associated deaths in the United States ranged from a low of 3,000 to a high of 49,000 people. On average, influenza causes more than 200,000 hospitalizations annually, and a [study](#)³ 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 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.

³ <http://www.ncbi.nlm.nih.gov/pubmed/17544181>



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 2017 request of **\$187,558,000** for Influenza Planning and Response is level with the FY 2016 Enacted level. FY 2017 funding will support the following activities:

- Influenza prevention
- Detection and monitoring of influenza
- State/Municipality/Territorial laboratory capacity support
- Response to influenza pandemics

Influenza Prevention

In FY 2017, CDC will support efforts to prevent influenza through vaccination. CDC focuses on increasing demand with healthcare providers for influenza vaccination each season through investments in health communication with providers and the general public, targeted outreach to high-risk populations, and partnerships with pharmacists as a means to extend the reach of influenza vaccination. Annual vaccination campaigns help reach the Healthy People 2020 influenza vaccination goals, including those for minority and high-risk populations, and they also help build capacity for vaccination efforts in the event of an influenza pandemic.

CDC studies published in [June 2013](#),³ [December 2013](#),⁴ and [December 2014](#)⁴ estimated influenza illness and hospitalizations averted by influenza vaccination in the [United States](#).^{5,6} A study published in [March 2015](#)⁶ showed that seasonal influenza vaccine prevented more than 40,000 flu-associated deaths in the United States during a nine-year period (between 2005 and [2014](#)).⁷ These studies showed that influenza vaccination programs

⁴ http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6349a2.htm?s_cid=mm6349a2_w

⁵ <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0066312>

⁶ http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6249a2.htm?s_cid=mm6249a2_w

⁷ <http://www.sciencedirect.com/science/article/pii/S0264410X15002315>

in the United States produce a substantial health benefit in terms of averted cases, clinic visits, hospitalizations, and deaths. However, opportunities for improvement were discovered. It was found that there was a potential for additional disease prevention through increased vaccination coverage, particularly among nonelderly adults, and increased vaccine effectiveness, particularly among the elderly. CDC will continue to examine the level of vaccination coverage. To complement national efforts, resources will be 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 result in improvement of influenza vaccination rates, particularly among children.

The Partnership for Influenza Vaccine Introduction (PIVI) is a growing CDC-led collaboration between public and private partners. PIVI supplies donated influenza vaccine to low- and middle-income countries that are otherwise ready to establish or expand their influenza vaccination programs, and assists with vaccination program evaluation and sustainability planning.

Recent vaccination donation programs were launched for the first year in Morocco (FY 2014), Armenia (FY 2015), and Moldova (FY 2016).

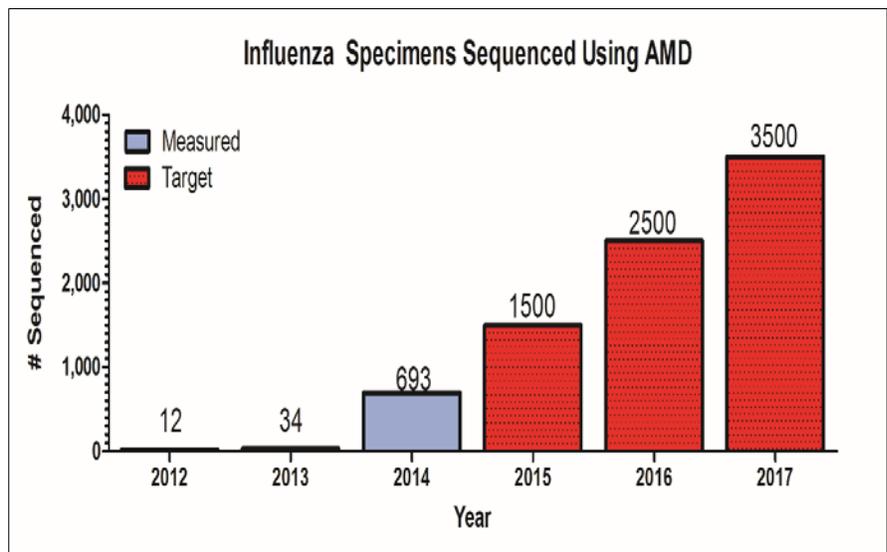
Detection and Monitoring of Influenza

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](#)⁸
- 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 cases. To build capacity for influenza surveillance, CDC continues to train public health laboratory workers at state laboratories that have similar responsibilities during foodborne outbreaks.

In FY 2017, 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. CDC receives and characterizes approximately 11,000 influenza virus specimens each year. During the 2014/2015 influenza season, CDC was able to



fully characterize 1237 virus specimens using a new deep sequencing method known as Advanced Molecular Detection (AMD). AMD uses advanced molecular sequencing tools along with cutting-edge information

⁸ <http://www.cdc.gov/flu/weekly/fluactivitysurv.htm>

technologies and bioinformatics experts to enable faster and more effective infectious disease prevention and control. The number of influenza virus specimens received and characterized fluctuates by year depending on the severity and burden of the disease. Worldwide characterization of these specimens is essential to the production of each season’s influenza vaccine. It also aids in informing vaccine policies and recommendations as well as decisions regarding potential vaccines for novel viruses with pandemic potential. Effective influenza control depends on shortening the time between identification of novel influenza viruses and delivery of effective vaccines.

CDC will 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 emerge when a virus that is predominantly transmitted 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. With the emergence of H5N8 and H5N2 in birds in the United States, CDC has been working with its animal health partners as well as with state and local public health to ensure capacity to detect and respond to human infection with those strains should that occur.

Because novel influenza viruses can emerge anywhere in the world, CDC will support the international monitoring of influenza and evaluate countries’ core capacities 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 by funding more than 40 countries, with emphasis on countries that continue to experience animal outbreaks and human cases of H5N1 and H7N9 influenza. Core activities funded through these agreements include:

- Establishing, expanding, and maintaining influenza surveillance and laboratory capacity
- Developing global and local pandemic plans and influenza prevention policies
- Supporting targeted research projects to address critical needs
- Building the evidence base for decisions on influenza vaccine program expansion

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 2015, 69% of CDC Influenza Partner countries routinely report to WHO FluNet. These increases continue as CDC adds partners to its portfolio. CDC will work on expanding virus sample sharing among countries so that vaccines and diagnostic tests for viruses with pandemic potential can be produced.

Domestically, CDC will support the capability of state and local health departments to conduct influenza laboratory testing. CDC will provide training and consultation to maintain the number of public health laboratories able to perform testing for resistance to antiviral medications and to participate in CDC evaluations of new influenza diagnostic tests.

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, five municipalities, and one territory through the ELC to conduct influenza surveillance and diagnostic activities with funding from the Influenza Planning and Response budget line.

In FY 2017, 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.

CDC provides ELC awardees with the reporting websites and other materials necessary to report influenza surveillance data throughout the year from public health laboratories, outpatient influenza-like illness surveillance sites, and vital statistics offices. CDC updates awardees on the current influenza season and any pertinent developments in influenza surveillance during monthly conference calls, yearly in-person meetings, and individually as needed. Awardees also rely on CDC’s epidemiologic, laboratory, and programmatic assistance during investigations of outbreaks or unusual cases of influenza (e.g., pediatric deaths, human infections with novel influenza A viruses, and antiviral resistant influenza infections or outbreaks).

Influenza Planning and Response ELC Grants^{1, 2}

| (dollars in millions) | FY 2013 | FY 2014 | FY 2015 | FY 2016 | FY 2017 | FY 2017 |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | Actual | Final | Final | Enacted | PB | +/- |
| | | | | | | FY 2016 |
| Number of Awards | 56 | 56 | 56 | 56 | 56 | 0 |
| - New Awards | 0 | 0 | 0 | 0 | 0 | 0 |
| - Continuing Awards | 56 | 56 | 56 | 56 | 56 | 0 |
| Award | | | | | | |
| Average Award | \$0.107 | \$0.107 | \$0.107 | \$0.107 | \$0.107 | \$0.000 |
| Range of Awards | \$0.016- | \$0.016- | \$0.016- | \$0.016- | \$0.016- | N/A |
| | \$0.232 | \$0.232 | \$0.232 | \$0.232 | \$0.232 | |
| Total Grant Awards | \$6.000 | \$6.000 | \$6.000 | \$6.000 | \$6.000 | \$0.000 |

¹ This table only reflects Influenza Planning and Response funding that goes out through the ELC, which also funds other infectious disease activities.

² These funds are not awarded by formula.

Response to Influenza Pandemics

In FY 2017, CDC will work to ensure the availability and effectiveness of medical countermeasures and equipment in the event of an influenza pandemic. Scientific experts will 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 also is collaborating 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 also provide scientific and programmatic expertise to help CDC's Public Health Emergency Preparedness (PHEP) cooperative agreement program and HHS' Hospital Preparedness Program (HPP) cooperative agreement awardees meet all hazard requirements of the Pandemic and All Hazards Preparedness Reauthorization Act of 2013. CDC collaborates with awardees to determine their jurisdictional priorities for capability development and sustainment, along with related performance measures. The pandemic influenza capabilities include Public Health Surveillance and Epidemiological Investigation, Public Health Laboratory Testing, Medical Countermeasure Dispensing, and Emergency Operations Coordination. In addition, 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. As was done in FY 2015, CDC will test its response capabilities with federal, state, and local partners in FY 2016 and FY 2017 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.