Influenza Division

Influenza is a serious disease that can lead to hospitalization and sometimes death, even among healthy people. In the United States, millions of people are sickened, hundreds of thousands are hospitalized, and tens of thousands of people die from flu every year. The Centers for Disease Control and Prevention's (CDC's) Influenza Division (ID) provides scientific and programmatic leadership for the diagnosis, prevention, and control of influenza domestically and internationally.

Mission

- Improve global control and prevention of seasonal and novel influenza, and
- Improve influenza pandemic preparedness and response.

Core Activities

- Build influenza disease surveillance and response capacity,
- Monitor and assess influenza viruses,
- Improve influenza vaccines and other medical interventions, and
- Conduct research to improve the scientific basis for enhancement of influenza prevention and control policies and programs.

Organization

CDC's Influenza Division is comprised of the Office of the Director and three Branches. The Office of the Director provides strategic vision and leadership for the division and houses policy, communications, and informatics functions of the division, as well as animal interface, molecular genetics, and international capacity-building. The three Branches include the Virology, Surveillance, and Diagnosis Branch (VSDB); the Epidemiology and Prevention Branch (EPB); and the Immunology and Pathogenesis Branch (IPB).

Leadership and Collaboration

CDC's Influenza Division also has served since 1956 as the World Health Organization (WHO) Collaborating Center (CC) for Surveillance, Epidemiology, and Control of Influenza and is the largest global resource and reference center supporting public health interventions to control and prevent seasonal, novel, and pandemic influenza worldwide.

As a WHO CC for Surveillance, Epidemiology, and Control of Influenza, the Division plays a major role in year-round surveillance for early detection and characterization of seasonal influenza viruses as well as novel influenza A viruses that may have pandemic potential. The Division collects and analyzes influenza viruses from around the world to monitor changes in the virus, referred to as "antigenic drift" and also to identify any increase in resistance to influenza antiviral treatment. Drifted viruses require updates to the vaccine. Candidate vaccine viruses are developed by the Division and are provided to vaccine manufacturers. Any novel, animal-associated influenza viruses causing disease in humans are fully characterized by the division and, using the Influenza Risk Assessment Tool (IRAT), the pandemic potential of the emerging virus is determined to inform public health responses.

Responding Domestically

CDC's Influenza Division works to reduce the threat influenza poses to the public's health. A cornerstone of these efforts is the support of annual seasonal influenza vaccination.

ID also collects, compiles, and analyzes information on influenza activity year-round in the United States.

- Flu vaccination prevented an estimated 1.9 million flu-associated illnesses and 67,000 hospitalizations during the 2014-2015 flu season.
- Flu vaccine saved an estimated 40,000 lives during a 9 year period from 2005-2006 through 2013-2014.

Updated Nov 2016

Information in five categories is collected from nine different data systems that allow CDC to

- Find out when and where influenza activity is occurring
- Track influenza-related illness
- Determine which influenza viruses are circulating
- Detect changes in influenza viruses
- Measure and monitor the impact influenza is having on hospitalizations and deaths in the U.S.

ID also works to both prevent novel influenza virus infections in people and to prepare for the possibility of outbreaks of human infections with animal influenza viruses, including avian influenza and swine influenza.

Enhancing Global Health Security

The CDC Influenza Division works with a wide range of international partners, including the World Health Organization, national ministries of health, and other partners to prevent and control seasonal influenza and to build capacity to respond to pandemic influenza. Over the past decade, the Division's international influenza activities have undergone remarkable growth, expanding to support more than 50 countries, each of the WHO Regional Offices, and WHO headquarters.

Core activities include helping to establish, expand, and maintain influenza surveillance and laboratory capacity, helping to develop global and local pandemic plans and influenza prevention policies, supporting targeted research projects to address critical needs, and building the evidence base for decision-making related to the introduction and/or expansion of influenza vaccine programs.

Recent Influenza Division Accomplishments*

- Annually provide influenza vaccine effectiveness estimates and national influenza disease burden estimates which are critical for refining policies for the use of the vaccines in the U.S. Also, expanded understanding of the effectiveness of vaccination in protecting against severe outcomes, such as hospitalizations.
- In collaboration with international partners, developed new estimates of global disease burden and a better understanding of influenza epidemiology in tropical and low income countries.
- Annually test about 70,000 respiratory specimens through a network of supported public health laboratories. Additionally, about 800,000 respiratory specimens are tested at clinical laboratories nationwide.
- Established a consortium of researchers from universities to develop new methods to use cutting edge systems to conduct influenza surveillance and forecasting.
- Improved and expanded advanced molecular detection (AMD) and next-generation sequencing (NGS) of influenza viruses. These data now represent one of the world's largest public sources of genomic sequence data for contemporary influenza viruses that are available to the scientific community.
- The Influenza Division used deep sequencing to fully characterize about 6,500 influenza virus specimens received from across the United States and around the world to support the development of vaccine viruses and inform vaccine virus selection.
- In collaboration with the Association of Public Health Laboratories (APHL), developed and implemented a cloud-based information resource to manage and analyze genetic sequence data of influenza viruses.
- Developed four recombinant candidate vaccine viruses that could be used to make vaccines against emerging novel influenza A viruses with pandemic potential.
- Created three live attenuated influenza vaccine viruses and provided these to the World Health Organization to support emerging vaccine production capacities globally.
- Supported the expansion of influenza vaccination through pilot flu vaccination and evaluation programs in Armenia, Laos, Morocco, Moldova, and Nicaragua.

*Information specific to fiscal year 2016 (FY16)