

CHINA



Inoculation of embryonated eggs with clinical samples at the National Influenza Center of China.

OVERVIEW

The U.S. Centers for Disease Control and Prevention (CDC) and China CDC have a long-term partnership on influenza that spans more than 20 years. Currently, China receives support to expand the use of seasonal influenza vaccine in their public health programs and a smaller amount of funding is provided to maintain the capacity of the national influenza surveillance network for the early detection of novel influenza viruses with pandemic potential. In addition, the U.S. CDC and China CDC work together to improve the rapid response to novel influenza viruses.

SURVEILLANCE

The Chinese government funds the influenza surveillance systems in China, including 408 network laboratories and 554 sentinel hospitals for influenza-like illness (ILI) and virology surveillance, 25 sentinel hospitals for severe acute respiratory infection (SARI) surveillance, and pneumonia of unknown etiology (PUE) surveillance throughout the country.

HIGHLIGHTS

- Collaborated with stakeholders to evaluate the pneumonia of unknown etiology (PUE) surveillance system to inform revision of the national protocol.
- Collaborated with U.S. CDC in scientific activities related to avian influenza A (H7N9) virus prevention and control.
- Collaborated with the U.S. CDC influenza team in Beijing to identify domestic scientific evidence and design and implement innovative pilot interventions that will inform influenza vaccination policy in China.

During October 2013–2015, with support from U.S. CDC, China CDC conducted surveillance quality improvement activities, enhancement to the national influenza surveillance information system, data analyses, and efforts to share surveillance data with the global community. The enhanced influenza surveillance systems facilitated the early identification and response to the avian influenza A (H7N9) virus outbreak, as well as the early detection of human infections with novel influenza viruses H10N8, H9N2 and H5N6.

SURVEILLANCE ACTIVITIES

- Interviewed 487 clinicians in 43 hospitals in Beijing, Hubei, Zhejiang and Guizhou provinces to understand clinician knowledge and practices related to the PUE surveillance system and case reporting.
- Strengthened the analysis and utilization of ILI, SARI and PUE surveillance data for avian influenza A (H7N9) virus outbreak response efforts.
- Expanded antiviral drug resistance surveillance for viruses collected through the ILI surveillance system with 5,569 viruses tested in the past year (compared with 1,041 the prior year).
- Shared 195 representative viruses with other WHO Collaborating Centers (CC) in a timely manner.
- Strengthened the capacity to conduct egg-based virus isolation in more than 60% of all 408 network laboratories.

- Tested more than 1,000 samples from severe acute respiratory infection cases for multiple pathogens.
- Conducted virus transmission capacity analyses on the basis of influenza outbreak incidents.

LABORATORY

In fiscal years 2014 and 2015, the Chinese National Influenza Center (CNIC) and U.S. CDC worked together to enhance ILI surveillance quality and CNIC's capacity to better support their 408 network laboratories. At the national level, thirteen senior staff participated in international meetings and trainings and received training on surveillance data analysis, influenza detection technology, scientific writing and other relevant topics in order to enhance CNIC's capacity to fulfill the requirements and responsibilities as a WHO CC, and to support the antigenic, genetic and drug resistance testing of avian influenza H7N9 virus in a timely manner.

LABORATORY ACTIVITIES

- Initiated and conducted the ISO 15189 laboratory accreditation at CNIC and four network laboratories.
- Established the classical reassortment platform for seasonal influenza candidate vaccine strains.
- Improved the capacity of network laboratories to conduct egg-based virus isolation.
- Participated and presented at international meetings, playing a greater role in global influenza control.
- Supported the monitoring of mutations of avian influenza H7N9 virus in a timely manner.

PREPAREDNESS

The risk of emerging novel influenza viruses with pandemic potential cannot be ignored in China, and the existing pandemic preparedness plan needs improvement. China CDC, with support from U.S. CDC, is developing a new national pandemic preparedness plan. In addition, China CDC is working closely with the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), and other partners to promote One Health approaches to influenza-related activities in China.

PREPAREDNESS ACTIVITIES

- Collaborated with U.S. CDC and WHO on the development of the national pandemic preparedness plan.
- Promoted communication on pandemic preparedness topics between China CDC and pandemic preparedness experts at U.S. CDC, Atlanta.
- Participated in the United Nations Theme Group on Health related to diseases at the animal-human interface.

TRAINING

- Supported hands-on training on sequencing and serology testing for 64 laboratory scientists from 32 provincial level network laboratories.
- Supported professional development of 11 CNIC scientists as they participated in training and international conferences in Geneva, London, Riga, Singapore, and Manila.
- Supported training of SARI surveillance staff from 25 provinces engaged in the national SARI surveillance system.

INFLUENZA VACCINE ACTIVITIES

Currently, seasonal influenza vaccine is not included in China's Expanded Program on Immunization. Influenza vaccination coverage among groups recommended for vaccination by WHO, U.S. CDC, and China CDC, including pregnant women, older adults, young children, people with chronic diseases and healthcare workers, is extremely low. China CDC is participating in a multi-country project designed to develop policies to expand seasonal influenza vaccination coverage.

In collaboration with Beijing CDC, Zhejiang CDC, Ningbo CDC and U.S. CDC, China CDC's focus is the expansion of vaccination coverage in two populations: young children living in Beijing, and older adults living in Ningbo. China CDC, the local CDCs and U.S. CDC are working together to gather and analyze scientific evidence on vaccine coverage, knowledge, attitudes, and practices (KAP) related to influenza infection and seasonal influenza vaccination, influenza disease burden and vaccine effectiveness to inform vaccine policy development in China.

In addition, Beijing CDC and Ningbo CDC are implementing innovative interventions to increase public acceptance and availability of seasonal influenza vaccination, while making recommendations for influenza vaccine policies in Beijing and Ningbo. In the future, successful interventions will be scaled up to other cities in China.

RESEARCH

The U.S. CDC is collaborating with China CDC, Fudan University School of Public Health and Suzhou CDC on the following research projects to inform both seasonal and avian influenza prevention and control recommendations and interventions in China in the future.

A study investigating the most recent cases of the avian influenza A (H7N9) virus outbreak in China to identify risk factors associated with human infection,

and to develop recommendations to prevent and control human infections. As of July 2015, there have been 680 human cases and more than 280 deaths of avian influenza A (H7N9) virus infection in China. Collaborations between China CDC and the U.S. CDC during the outbreaks have facilitated virus sharing and information exchange.

A prospective study to define the epidemiological characteristics and economic burden of severe respiratory infection (SARI), and specifically influenza infection, among hospitalized children less than five years of age in Suzhou, China. This study has established the disease burden of influenza-associated hospitalization among children aged less than 5 years old in Suzhou, and has provided local scientific evidence for influenza vaccine policy development in China.



China's national influenza meeting organized by the National Influenza Center of China in October 2014 in Guiyang, Guizhou Province. Opening remarks were made by Dr. Shu Yuelong, Director of the National Influenza Center of China, Dr. Wang Dingming, the Guizhou Provincial CDC Director, and Dr. Carolyn Greene, Director of the U.S. CDC influenza program in China.