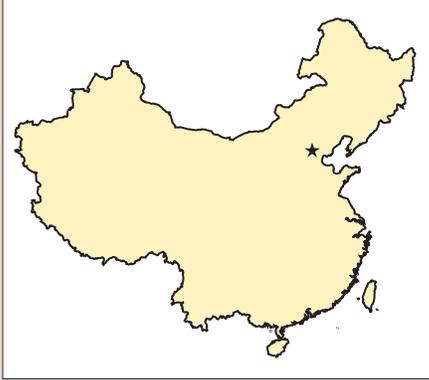


# China



- **Capital:** Beijing
- **Area:** 9,596,961 sq km
- **Population:** 1,343,239,923 (July 2012 est.)
- **Age Structure:** 0-14 years: 17.6% (male 126,634,384/ female 108,463,142); 15-64 years: 73.6% (male 505,326,577/female 477,953,883); 65 years and over: 8.9% (male 56,823,028/ female 61,517,001) (2011 est.)
- **Life Expectancy at Birth:** Total population: 74.84 years; male: 72.82 years; female: 77.11 years (2012 est.)
- **Infant Mortality Rate:** Total: 15.62 deaths/1,000 live births; male: 15.38 deaths/1,000 live births; female: 15.9 deaths/1,000 live births (2012 est.)
- **Literacy Rate:** Total population: 92.2%; male: 96%; female: 88.5% (2008 Census)
- **GDP:** \$11.29 trillion (2011 est.)
- **GDP per Capita:** \$8,400 (2011 est.)

## Highlights

- In October 2010, China's National Influenza Center (CNIC) was designated as a World Health Organization (WHO) Collaborating Center for Reference and Research on Influenza (CC). To ensure the quality of surveillance and enhance CNIC's support to surveillance network laboratories and neighboring countries, the U.S. Centers for Disease Control and Prevention (CDC) collaborated with CNIC on laboratory quality improvement, which covers both national and provincial level laboratories, with the goal of achieving national and international accreditation before 2014.
- In line with their national strategy, CNIC set up environmental surveillance to estimate infection rates of highly pathogenic avian influenza viruses among occupationally exposed populations and to describe the distribution of viruses in live bird markets, poultry farms, poultry slaughter sites and migrant bird habitats through environmental sampling in all 31 provinces.

## U.S. CDC Direct Country Support

CDC and CNIC are in the second year of a five-year sustainability cooperative agreement titled *Developing Sustainable Influenza Surveillance Networks and Response to Avian Pandemic Influenza in China*. CNIC was established in 1954, and joined the, then-called, WHO Global Influenza Surveillance Network (now GISRS) in 1981. In 2009, in response to the H1N1 influenza pandemic, surveillance for influenza-like illness (ILI) among outpatients was expanded from 197 to 556 hospitals and the influenza surveillance network laboratories grew from 63 to 411. The second five-year cooperative agreement awarded by CDC in 2010 has strengthened the development of this influenza surveillance network, in particular, by improving the quality of new surveillance sites. In addition, the cooperative agreement has continued to support genetic, antigenic and drug resistance surveillance (in part to inform vaccine recommendations), established environmental surveillance, and strengthened influenza response capacity at all levels.

## Surveillance

China's ILI surveillance network was expanded in 2009, and the CDC cooperative agreement improved its capacity for carrying out nucleic acid detection and egg-based virus isolation in network laboratories, by providing hands-on training, as well as intensive laboratory assessments. Through joint efforts of CDC-China and CDC, in October 2010, CNIC was designated as a WHO CC, just one of five globally. CDC continues to support antigenic, genetic and drug resistance surveillance, in part, to develop improved vaccine strain selection. In addition, the cooperation supported the establishment of environmental surveillance to estimate the rate of infection with highly pathogenic avian influenza viruses among occupationally exposed populations, and to investigate the distribution of influenza strains circulating in all 31 provinces.

### Surveillance Activities

- The CNIC publishes ILI surveillance reports weekly in both Chinese and English on the public website.
- Laboratory technicians have been trained in nucleic acid detection and egg-based virus isolation.
- The CNIC has expanded the genetic and antigenic characterization and determination of drug resistant viruses collected through the ILI surveillance system.
- The CNIC share representative viruses with other WHO CCs in a timely fashion.
- The CNIC have established environmental surveillance to estimate infection with highly pathogenic avian influenza virus (H5N1 and H9N2) among occupationally exposed populations and to examine the distribution of these strains across the country.

## Laboratory

In 2011, the CNIC and CDC worked closely together to enhance ILI surveillance quality and CNIC's capacity to better support their 411 network laboratories and neighboring countries such as Mongolia.

At the national level, two CNIC staff, an epidemiologist and a laboratory scientist, trained extensively at CDC in Atlanta. Moreover, most staff participated in international meetings and trainings. Notable progress has been achieved:

- Established analytic methods and indicators to assess ILI sentinel surveillance.
- Enhanced their ability to independently analyze the evolution of influenza antigens with antigenic cartography techniques.
- Detected respiratory pathogens rapidly via methods used for emergency preparedness.
- Established environmental virologic surveillance and surveillance in occupationally exposed populations.

In China's 411 network laboratories, achievements are as follows:

- Approximately 100 network laboratory staff received training to increase their capacity to conduct nucleic acid detection and viral characterization.
- The CNIC conducted comprehensive, hands-on training for laboratory technicians from 10 selected network laboratories.
- A laboratory quality improvement project was started in four provinces, including repeated field supervision.

## Laboratory Activities

- Designated officially as a WHO CC in October 2010.
- Shipped influenza virus strains to other WHO CCs.
- Re-established at both the national and provincial levels laboratory quality improvement following the 2009 expansion of the laboratory network.
- Initiated vaccine seed selection and a preparation platform.
- Helped selected network laboratories successfully conduct egg-based virus isolation.
- Developed a reference kit for network laboratories in order to evaluate PCR kits used in surveillance.
- Conducted training and workshops on nucleic acid detection for selected network laboratories.
- Provided a comprehensive, hands-on training for 10 technicians from selected network laboratories.
- Participated and presented at international meetings, playing a greater role in global influenza control.
- Trained two senior staff members; one epidemiologist, and one laboratory scientist.

## Training

In 2010–2011, CDC supported the following trainings for the CNIC:

- A national influenza surveillance quality control and ISO15189 laboratory accreditation training workshop was held for 28 provinces with approximately 120 staff in attendance.
- A laboratory quality improvement and ISO15189 laboratory accreditation training workshop was held for CNIC staff and conducted by the Hong Kong Accreditation Service..
- A workshop in environmental surveillance was held for 80 participants.
- Two training workshops on influenza laboratory detection techniques were held for approximately 100 key technicians from 69 network laboratories. The workshops were based on the requirements outlined in *China's National Influenza Surveillance Protocol (2010)*.
- CNIC staff attended internal auditor training conducted by the China National Accreditation Association to improve laboratory management.
- Two CNIC staff attended an infectious material transportation training course held by the WHO and International Air Transport Association (IATA) in Vietnam.

## Publications

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## Contacts

Jeffrey McFarland, MD  
 China GDD Regional Center Director  
 Influenza Lead  
 CDC-China  
 Beijing, P.R. China  
 Email: jwm5@cdc.gov

Zhou Suizan, MPH  
 Influenza Program Officer  
 CDC-China  
 Beijing, P.R. China  
 Email: zhousz@cn.cdc.gov

Song Ying, MD, MS, MHS  
 Senior Program Officer  
 CDC-China  
 Beijing, P.R. China  
 Email: songying@cn.cdc.gov

Shang Mei, MSc  
 Influenza Laboratory Officer  
 CDC-China  
 Beijing, P.R. China  
 Email: shangm@cn.cdc.gov



*A view of the skyline in China.*