

# Vietnam



- **Capital:** Hanoi
- **Area:** 331,210 sq km
- **Population:** 91,519,289 (July 2012 est.)
- **Age Structure:** 0-14 years: 25.2% (male 11,945,354/female 10,868,610); 15-64 years: 69.3% (male 31,301,879/female 31,419,306); 65 years and over: 5.5% (male 1,921,652/female 3,092,589) (2011 est.)
- **Life Expectancy at Birth:** Total population: 72.41 years; male: 69.95 years; female: 75.16 years (2012 est.)
- **Infant Mortality Rate:** Total: 20.24 deaths/1,000 live births; male: 20.61 deaths/1,000 live births; female: 19.83 deaths/1,000 live births (2012 est.)
- **Literacy Rate:** Total population: 94%; male: 96.1%; female: 92% (2009 Census)
- **GDP:** \$299.2 billion (2011 est.)
- **GDP per Capita:** \$3,300 (2011 est.)

## Highlights

- Vietnam's Ministry of Health (MOH), through the National Institute of Hygiene and Epidemiology (NIHE) and with support from the U.S. Centers for Disease Control and Prevention (CDC) Influenza Program in Vietnam as successfully initiated both severe acute respiratory infection (SARI) and burden of disease surveillance.
- The animal-human interface (AHI) Initiative at CDC-Vietnam, together with the NIHE, successfully completed a pilot extension of an AHI study in Thai Binh province, North Vietnam.
- CDC-Vietnam provided AHI technical assistance and information on the "One Health" Initiative to the Laos MOH and Ministry of Agriculture through a training workshop held by CDC Lao PDR and the U.S. Department of Agriculture (USDA).
- In December 2010, CDC's Influenza Program in Vietnam participated in, and provided recommendations during the "Capacity-building Workshop on Vaccination against Avian Influenza" held in Hanoi, with member countries of the Asia-Pacific Economic Cooperation (APEC). The U.S. Embassy published a press release about the workshop titled, *United States Provides Recommendations on Combating Avian Influenza*.
- The MOH has seen the graduation of its first class of eight field epidemiology training program (FETP) fellows. CDC-Vietnam has supported Vietnam's FETP through the provision of class instruction, abstracts, presentations, and manuscripts.
- CDC-Vietnam reviewed the veterinary diagnostic laboratory at the Ministry of Agriculture and Rural Development (MARD), identifying a functional laboratory with limited resources. CDC-Vietnam made recommendations for the laboratory's improvement.

- Data collected through Vietnam's influenza surveillance system has been analyzed and presented by NIHE at the Options for the Control of Influenza and TEPHINET conferences.

## U.S. CDC Direct Country Support

The CDC-Vietnam Influenza Program has three cooperative agreements with Vietnam's MOH: (i) a five-year sustainability agreement with the NIHE provides support to the existing national influenza surveillance system developed under the first five-year capacity-building cooperative agreement (2005–2009), (ii) a five-year research agreement with NIHE is in its third year of activities and includes animal-human interface projects, and (iii) a five-year pandemic preparedness and response agreement with the General Department of Preventive Medicine (GDPM) is in its final year. CDC is developing a fourth cooperative agreement with MARD.

The CDC-Vietnam Animal-Human Interface (AHI) Initiative continues to support and enhance the “One Health” strategy forged by the collaboration between Vietnam's MOH and MARD, through joint meetings, technical assistance, and cooperative agreement supported activities. The influenza and AHI programs provide mission support on a regular basis to the U.S. Embassy Health Team, including requests for infectious disease information. The programs also provide technical assistance to Vietnam's FETP, and in FY 2011, this included a CDC-NIHE presentation on AHI at the Sixth Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) Global Conference in December 2010. The influenza and AHI programs provide technical support to other U.S. government and non-government organization (NGO) partners in Vietnam, including the U.S. Agency for International Development (USAID), USDA, the World Health Organization (WHO), and the Food and Agricultural Organization of the United Nations (FAO).



*A patient receiving an influenza vaccine at a sentinel surveillance site.*

## Surveillance

In 2005, CDC entered into a five-year, capacity-building cooperative agreement with Vietnam's MOH to establish a national influenza surveillance system. The system was developed primarily as an outpatient surveillance system for influenza-like-illness (ILI), with just four sites. Later, a total of 15 sites were strategically located throughout the country's four geographic regions. The system now includes nationwide passive surveillance, which detects cases of unexplained severe pneumonia in hospitals, including the vast majority of Vietnam's confirmed human H5N1 cases. A second five-year cooperative agreement started in 2010 and expanded surveillance to include inpatient SARI. As of September 2011, there were 11 sentinel sites supported through the second sustainability cooperative agreement, including five sites for both ILI and SARI surveillance and six sites for ILI surveillance only.

### Surveillance Activities

- With assistance from CDC Atlanta and CDC-Vietnam staff, the NIHE incorporated antiviral resistance surveillance into the national influenza surveillance system.
- NIHE trained staff and successfully initiated severe acute respiratory illness (SARI) surveillance in five hospitals.
- NIHE trained staff and successfully initiated burden of disease surveillance in three district hospitals. This surveillance collects economic data, in addition to demographic data from SARI patients, such as job type and family income.

- NIHE epidemiology and laboratory staff, with support from CDC-Vietnam, publish countrywide influenza surveillance data (including ILI, SARI, and severe viral pneumonia) in the Influenza Weekly Update Vietnam report. This report also contains updates on program staff activities, official reports on influenza and other zoonotic disease activities in Vietnam, as well as media reports. These reports are shared with CDC Atlanta, regional CDC colleagues, and CDC-Vietnam management.

## Laboratory

Vietnam has two National Influenza Centers (NIC), the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi and the Pasteur Institute of Ho Chi Minh City (PI-HCMC). The CDC Influenza Program in Vietnam works closely with both NICs. NIHE and PI-HCMC continue to provide influenza virus samples to the WHO Collaborating Center (CC) in Atlanta.

The CDC AHI Initiative in Vietnam continues to collaborate with the National Center for Veterinary Diagnosis (NCVD) of Vietnam's MARD. The NCVD provides poultry samples to CDC Atlanta for review and analysis.

The sharing of human and animal samples not only assists with providing information on influenza virus types, characterization, and co-evolution in Vietnam, but also contributes to the knowledge of tropical influenza viruses in Asia, as well as anti-viral resistant strains.

## Laboratory Activities

- In 2011, 4,417 ILI samples were tested from the outpatient sentinel sites of the national influenza surveillance system, with an influenza positivity rate of 15%.
- In 2011, 992 SARI samples were tested from the inpatient sentinel sites of the national influenza surveillance system, with an influenza positivity rate of 6.5%.
- One-hundred and twenty-eight samples from persons with severe unexplained pneumonia were tested in 2011 and 29 (23%) of these cases were caused by seasonal influenza strains.
- Vietnam's two NICs, NIHE and PI-HCMC, together provided 123 influenza specimens to the WHO CC in Atlanta in 2011.



*Poultry for sale at a market in Vietnam.*

- CDC-Vietnam provided an informal review of laboratory capacities at NCVD in April 2011 at the suggestion of the AHI and by request from Vietnam's MARD. This informal review helped NCVD determine the capacity-building activities they would need to undertake in order to conduct influenza and other zoonotic disease testing in their laboratories, and therefore the plausibility of a future cooperative agreement with CDC. The NCVD advised they would use the informal review to: (i) assist their staff with recommendations for improvement; (ii) prepare for future International Organization for Standardization (ISO) reviews, and (iii) make recommendations to the Department of Animal Health (DAH) and MARD for future capacity and sustainability needs.

## **Preparedness**

CDC support for Vietnam's pandemic preparedness started in 2006 in the form of a cooperative agreement with the MOH's GDPM. This agreement focuses on: (i) supporting the development, revision and testing of avian influenza and pandemic influenza preparedness plans for government, agencies, and organizations; (ii) coordinating activities and sharing information among partners, and (iii) developing and disseminating communication messages and materials.

### ***Preparedness Activities***

- Organized training courses for preventive medicine staff at the provincial level on the epidemiology of influenza and pandemic response.
- Conducted workshops for health staff at the district level to disseminate infection control. Developed and disseminated avian influenza communication material for high-risk groups, focusing on people who work in poultry markets, slaughter-houses, and chicken farms.
- Developed guidelines for local communication staff describing how to communicate during an influenza pandemic.
- Continued maintaining and updating the MOH website, officially reporting on the status of influenza and other emerging diseases in Vietnam.
- Continued providing guidelines, policies, and legislation on influenza and other infectious diseases.
- Conducted a workshop to review the implementation of the CDC cooperative agreement from 2007–2011 and to identify their achievements, strengths, and weakness in influenza pandemic preparedness over this period.

## **Training**

- CDC-Vietnam continues to support the MOH's FETP through the development of training modules, participation in classroom sessions, and technical oversight of abstracts, presentations, and manuscripts, required by FETP fellows for meetings and conferences. The FETP graduated its first cohort of fellows in August 2011.
- CDC supported laboratory staff from PI-HCMC to attend laboratory management training in South Africa.
- CDC supported a workshop in Hanoi to help develop influenza antiviral resistance surveillance in Vietnam. The goal of the workshop was to establish laboratory tools for antiviral resistance surveillance based on pyrosequencing and neuraminidase inhibition assays.

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