

# Lao People's Democratic Republic (PDR)



**Capital:** *Vientiane*  
**Infant Mortality Rate:** *56.13/1,000 live births*  
**Population:** *6,695,166 (July 2013 est.)*



## Overview

In Laos, CDC is building capacity for avian, pandemic, and seasonal influenza preparedness by strengthening laboratories, surveillance, outbreak response, capacity building initiatives, infection control guidelines and best practices, clinical case management, and pandemic planning. CDC technical investments have led to: recognition of seasonal influenza as a public health problem; reliable laboratory capacity to detect influenza; data sharing of viral data with WHO Global Influenza Surveillance and Response System (GISRS); and improvements and expansion nationwide of the influenza-like illness (ILI) and severe acute respiratory illness (SARI) surveillance networks. Testament to capacity enhancements has been shown by WHO recognition of the National Center for Laboratory and Epidemiology as a designated National Influenza Center (NIC) in August 2010. Capacity building beyond influenza has strengthened the International Health Regulations as practiced in Laos, and enabled Laos's first time laboratory detection of human anthrax and circulating dengue subtypes.

## Highlights

- Adopted seasonal influenza vaccination policy into the National Immunization Program (NIP) agenda.
- Added dengue surveillance onto ILI/SARI surveillance platform; enabled recognition of dengue epidemic.
- Conducted second annual seasonal influenza vaccine campaign targeting 100,000 persons from prioritized groups: pregnant women, elderly, chronically ill and health care workers.

## Surveillance

The Virological ILI/SARI Surveillance Network in Laos consists of eight hospital sites throughout the country, supported by the CDC-WHO Collaboration and managed by the National Center for Laboratory and Epidemiology (NCLE), a WHO designated National Influenza Coordinating Center (NIC). Additionally, CDC partners with Oxford Welcome Trust (and NCLE) in Non-Malaria Fever Surveillance (NMFS) with focus on influenza in a febrile disease surveillance activity, involving one hospital in Luangnamtha in the north and Saravan in the south.

### Surveillance Activities

- Found no evidence of spread of H5N1 from Cambodia bordering to the south, and H7N9 from China bordering to north.
- Attributed over 40% of febrile disease episodes from NMFS to influenza. Current analysis will yield measures of under-reporting (in FY 2014).
- Seasonal Trends and Circulating viral sub-strains (and phylogenetic analysis) provide the requisite background information for influenza vaccine activities in 2013.
- Graduated fourth FETP class, with an alumni network of 39 training epidemiologists throughout the country.
- Completed the first "full genomic sequencing" activity in Laos, describing the phylogenetic evolution of H5N1 from 2004–2009.
- Initiated feasibility assessment of seasonal influenza vaccinations in pregnant women on birth outcomes/ measures.

## Laboratory

NCLE with support from the CDC-WHO Collaboration carries out RT-PCR based laboratory testing, using a WHO prescribed diagnostic algorithm. External Quality Assessment Project (EQAP) results carried out in Hong Kong proved 100% testing reliability for FY 2013.

### Laboratory Activities

- Adapted protocol from the Thai NIH continues to maintain cell lines for cell culture work in producing viral isolates.
- Contributed ~300 viral influenza isolates to the WHO Global Influenza Surveillance and Response System (GISRS).
- Received H7N9 primers/probes; incorporated into the NCLE diagnostic algorithm.
- Received 1,513 influenza samples [Influenza B positive = 111 samples (7.34%); influenza A/H3 positive = 31 samples (2.05%); influenza A/pdmH1N1 positive = 42 samples (2.05%); influenza A/untypable positive (low virus titre) = 1 sample (0.07%); Negative = 1,328 samples (87.77%)].
- Investigated nine suspected influenza outbreaks from October 12 to August 16, 2013 in which NCLE received 69 samples.
- Investigated suspect influenza outbreaks which were attributed to the following: Influenza B (Vientiane Capital, Attapeu and Sekong); Influenza A/H3 (Xayaboury and Sekong); Influenza A/pdmH1N1 (Phongsaly); and Negative for Influenza (Pongsaly, Champassak and Sekong).
- Conducted a laboratory review with assistance from the Alaska State Laboratory in May 2013, assisted with providing guidance in the use of new H7N9 primers/probes.
- Completed full genomic sequencing of H5N1 animal isolates from sampling six outbreak clusters to describe the phylogenetic evolution of H5N1 from 2004–2009.

## Preparedness

The CDC-WHO Collaboration partnered with NCLE and the Ministry of Health (newly formed clinical working groups) revised SARI clinical management, specimen collection and processing guidelines, and disseminated to all hospitals throughout the country.

## Special Project

### *Laos Vaccine Donation Project*

During Fiscal Year (FY) 2013, CDC facilitated a vaccine contribution with bioCSL (Australia) that provided 100,000 targeted groups (pregnant women, elderly, chronically ill and Health Care Workers (HCW)). Operational deployment costs provided by CDC enabled training and vaccine distribution in selected districts/provinces throughout the country. There were no adverse events following immunization (AEFIs) recognized through conventional NIP monitoring.

Supplemental funds made available through WHO Laos valued at \$250,000 will be used to support regional training activities add two additional SARI sites in addition to the existing ILI (eight sites) and SARI (five sites) surveillance network, and allow for procurement of additional reagents and materials for laboratory testing purposes.

## Preparedness Activities

- Supported series of clinical working group guideline development meetings.
- Produced 1,500 posters for disseminating new SARI virological surveillance guidelines to health centers, district and provincial hospitals, and national hospitals in all 17 provinces.
- Carried out three regional training workshops to disseminate new SARI virological guidelines from February/March to June 2013, in Luangprabang, Bolikhamxay, and Champassak.
- Revised SARI collection guidelines to capture H7N1 cases.

## Training

- Supported Annual Field Epidemiology Training (FET) workshop in March 2013 in Khammouan Province.
- Supported Annual Meeting Workshop on Surveillance and Response of Notifiable Selected Diseases in April 2013.
- Supported Annual ILI/SARI workshop meeting in April 2013.

## Publications

Khamphaphongphane B, Ketmayoon P, Lewis HC et al. Epidemiological and virological characteristics of seasonal and pandemic influenza in Lao PDR, 2008–2010. *Influenza Other Respir Viruses*. 2013 May;7(3):304–11. doi: 10.1111/j.1750-2659.2012.00394.x. Epub 2012 Jun 21.

Mayxay M, Castonguay-Vanier J, Chansamouth V et al. Causes of non-malaria fever in Laos: a prospective study. *The Lancet Global Health*. 2013 Jul 1(1): e46–e54. doi:10.1016/S2214-109X(13)70008-1.

Phommasack B, Moen A, Vongphrachanh P et al. Capacity Building in Response to Pandemic Influenza Threats: Lao PDR Case Study. *Am J Trop Med Hyg*. 2012 Dec;87(6):965–71. doi: 10.4269/ajtmh.2012.12-0074.