

# LAO PEOPLE'S DEMOCRATIC REPUBLIC




Influenza Vaccination Campaign.

## OVERVIEW

Since 2005, Lao People's Democratic Republic (Lao PDR) has received support through the Western Pacific Regional Office (WPRO) for avian, pandemic, and seasonal influenza preparedness to strengthen laboratories, surveillance, outbreak response, capacity building initiatives, infection control guidelines and best practices, clinical case management, and pandemic planning. In 2010, the National Center for Laboratory and Epidemiology (NCLE) was designated as a National Influenza Center (NIC) by the World Health Organization (WHO). Over the past 10 years, Lao PDR has continued to develop and improve their capacity building beyond influenza in support of the International Health Regulations. Beginning in fiscal year 2016, NCLE will be graduating to the maintenance phase of the program.

## SURVEILLANCE

Lao PDR continued surveillance for influenza-like illness (ILI) at eight hospital sites in five provinces and for severe acute respiratory infection (SARI) at five sites in five provinces; the sites are geographically distributed throughout Lao PDR. Five hundred and eighty-seven and 777 SARI patients were screened for influenza in 2013 and 2014, respectively. SARI

## HIGHLIGHTS

- Incorporated seasonal influenza vaccine into the National EPI Strategy.
- Deployed influenza vaccine reaching over 700,000 people through the Partnership for Influenza Vaccine Introduction (PIVI) contributions, highlighting the value of public-private vaccine partnerships (May–June 2014).
- Conducted first multi-hospital assessment in the region evaluating the association between influenza vaccine use in pregnant women with birth outcomes.

site coverage expanded to 13 additional hospitals throughout Lao PDR with special congressional funding for avian influenza A (H7N9). Animal health surveys were periodically conducted in three provinces, and recently expanded to two additional sites, with a focus on wet markets and farms. In collaboration with Wellcome Trust, non-malaria fever surveillance was expanded to a third province. Lao PDR established dengue surveillance using the ILI/SARI Surveillance Platform.

## SURVEILLANCE ACTIVITIES

- Recognized shifting patterns of influenza seasonality, first observed in 2014 and again in 2015.
- Identified two distinct influenza A (H5N6) virus outbreaks in poultry populations in March and July 2014.
- Completed full genomic sequencing using newly established capabilities on influenza A (H5N1) viruses from outbreak clusters, using a shared "One Health" platform.
- Recognized the relative importance of influenza viruses as a causative etiology in febrile illness, as high as 40% in febrile cases during peak seasonality.
- Received recognition for tracking the 2013–2014 dengue epidemic.

## LABORATORY

Lao PDR continues to perform quality laboratory testing using the WHO suggested diagnostic algorithm, testing 2,746 specimens in 2014 from both surveillance and study-related activities.

The U.S. Centers for Disease Control and Prevention (CDC) coordinated assistance from the U.S. Defense Threat Reduction Agency (DTRA) for the following at NCLE: 1) new generator; 2) enhanced cold storage capacity; and 3) new roofing.

### LABORATORY ACTIVITIES

- Continued to contribute viral isolates (169 in 2014–2015) to GISRS through the WHO CC in Atlanta.
- Participated in WHO's External Quality Assurance Project (EQAP) and CDC's performance panel: scoring 100% on both programs.
- Shared laboratory expertise with the National Institute of Public Health (NIPH) in Cambodia, to assist in establishing first-time cell culture capabilities for the production of viral isolates.

## PREPAREDNESS

After a lapse of years, pandemic preparedness activities in Lao PDR were reactivated with avian influenza A (H7N9) and (H5N1) virus threats in China and Cambodia, respectively. In October 2014, regional training workshops combining Ebola and avian influenza (AI) were instituted. Additionally, recognition of seasonal influenza vaccine deployment in adult populations has proven critical in preparing EPI activities to meet pandemic vaccine demands in the future.

### PREPAREDNESS ACTIVITIES

Current efforts have had policy effects in at least three major areas:

- Prepared AI and Ebola policy guidelines.
- Prepared AI and Ebola workshop training materials.
- Facilitated WHO procurement of personal protective equipment (PPE) materials and antivirals.

## TRAINING

- Conducted AI and Ebola training in Vientiane (September 2014), Luang Prabang (November 2014), and Pakse (January 2015).
- Conducted national surveillance workshops in Thalat (March 2014/April 2015).
- Conducted national ILI/SARI refresher training in all provincial hospitals (February–March 2015).
- Conducted One-Health training on avian influenza A (H7N9) virus in the Northern provinces, Luang Prabang (May 2014).
- Conducted biosafety laboratory training for animal and human laboratory sectors in collaboration with DTRA (January and April 2015).
- Conducted laboratory training targeting the National Animal Health Center Laboratory in necropsy and pathology (in collaboration with DTRA and MORU-AFRIMS).
- Trained national and local staff from the National Immunization Program (NIP) in seasonal influenza vaccine delivery (April/May 2014).
- Trained hospital staff in Vientiane and Luang Prabang in conducting vaccine impact assessments in pregnant women (including Ballard scoring).
- Trained NIP data management staff in conjunction with seasonal influenza vaccine related projects.



Interview of mother in Luang Prabang.



## INFLUENZA VACCINE ACTIVITIES

- Deployed 763,000 doses of bioCSL donated vaccine for the third year since seasonal influenza vaccine introduction, again targeting pregnant women, elderly, chronically ill, and all health care workers (May – June 2014).
- Shared experiences in numerous WHO/GAVI forums, including the April/May 2015 meeting in Geneva.
- Established new initiative to promote sustainable vaccine sharing.
- Highlighted seasonal influenza vaccine deployment as an important pandemic preparedness measure.
- Conducted impact assessment activities involving 6,000 vaccinated and non-vaccinated pregnant women linked with birth outcome findings and post-delivery data collection (May 2014–February 2015).

## RESEARCH

With the introduction of seasonal influenza vaccine, Lao PDR, in collaboration with U.S. CDC, has started a research agenda to evaluate vaccine impact. Other partners include the Oxford Wellcome Trust, UNICEF and WHO. Findings from recent U.S. CDC-supported publications highlight the successful deployment of both pandemic and seasonal influenza vaccines in Lao PDR, attesting to safety and acceptability in prioritized targeted populations (e.g., pregnant women), and serve as an example to other low income countries considering such disease reduction vaccine strategies.

Vaccine policy adoption in Lao PDR has enabled opportunities to assess vaccine issues related to pregnant women, not only in terms of safety, but impact on birth outcomes. Finally, and complementary, newly created community-based influenza research platforms allow for influenza disease burden estimates in pregnant women. Findings to date have critical implications in moving low income countries toward seasonal influenza vaccine uptake and future pandemic vaccine considerations. These include:

- No serious adverse events following immunizations (AEFI) in pregnant women, elderly, chronically ill or health care workers (HCWs), in three years of seasonal influenza vaccine campaigns in which over one million doses were administered.
- No negative impact of seasonal influenza vaccine on birth weight outcome measures, in a study population of 6,000 vaccinated and non-vaccinated pregnant women. Preliminary findings suggest that seasonal influenza vaccination could contribute to a reduction in premature birth outcomes.
- Seasonal influenza recognized as the single most detected etiology in pregnant women presenting with fever from community based study findings.