

# BHUTAN



Training of health workers on the web-based reporting system.

## OVERVIEW

The Public Health Laboratory (PHL) under the Department of Public Health, Ministry of Health, Bhutan, is in the second year of a five-year capacity building cooperative agreement with the Centers for Disease Control and Prevention (CDC). The key objectives of the agreement are to strengthen the existing influenza surveillance system established in 2009-2010 following the 2009 influenza pandemic and achieve National Influenza Center (NIC) status from the World Health Organization (WHO).

With CDC's financial and technical support and recommendations, several positive changes have been made to the system. These include improved sample transportation, laboratory testing capacity, influenza-like illness (ILI) case reporting, and establishing surveillance for severe acute respiratory infections (SARI). Access to reagents through CDC's Influenza Reagent Resource (IRR) has helped maintain continuous testing. Currently, Bhutan is in the process of enhancing the level of preparedness and response to influenza pandemic threats.

## SURVEILLANCE

The Public Health Laboratory (PHL) conducts and coordinates influenza surveillance for Bhutan. Currently, there are 11 influenza sentinel sites. All sites conduct SARI surveillance and seven of the 11 sites also conduct ILI surveillance. As per the Bhutan influenza surveillance guideline, each site reports the

## HIGHLIGHTS

- Established SARI surveillance system.
- Developed a web-based ILI and SARI surveillance reporting system.
- Established the capacity of relevant health professionals to conduct influenza surveillance and laboratory testing.
- Established event-based surveillance and outbreak investigation and response system.
- Published manuscript "Epidemiological and Virological Characteristics of Influenza B: Results of the Global Influenza B Study" in IORV Journal.

number of ILI and SARI patients meeting the case definition every week through a web-based reporting system. Sites collect six to eight ILI samples per week. The sites are responsible for shipping samples to PHL.

## SURVEILLANCE ACTIVITIES

- Reviewed the existing influenza surveillance system with experts from CDC and submitted the summary report to the Ministry of Health.
- Revised and printed an ILI and SARI influenza surveillance guideline. The small size, easy-to-use booklet that includes flow charts has been distributed to all sentinel sites.
- Procured IT equipment for web-based reporting, and redesigned the ILI and SARI web-based reporting system.
- Developed a surveillance information system user manual and made it accessible on PHL's website, [www.phls.gov.bt](http://www.phls.gov.bt).
- Provided each sentinel site with detailed laboratory results so health providers were aware of which patients were influenza -positive.
- Produced weekly PHL reports on ILI and SARI cases on Bhutan's web-based reporting system, Flu View. Reports are available in aggregate and detailed by sentinel site.
- Submitted manuscript "Temporal Pattern of Influenza A and B in the Tropics and Temperature Countries: What are the Lessons for Influenza Ratiocination" for publication in the WHO bulletin.



## LABORATORY

PHL worked closely with the Armed Forces Research Institute of Medical Sciences (AFRIMS) in Bangkok to establish the RT-PCR assay and testing prior to the CDC cooperative agreement award. This has enabled PHL to contribute influenza virological surveillance data to GISRS since 2011.

Laboratory testing and surveillance have improved with updated equipment and training from both AFRIMS Thailand and CDC. Providing access to IRR has helped mitigate shortages of reagents. During the last two years, sample quality has improved due to training and an improved shipment mechanism.

By the end of 2015, PHL will move into a new, modern, spacious laboratory. It will house additional equipment, facilitate RT-PCR testing and have space for setting up virus culture. Staff are looking forward to having the capacity to culture virus, a step needed to become a WHO NIC.

### LABORATORY ACTIVITIES

- Procured ABI PCR system and other needed equipment for the influenza laboratory.
- Trained two laboratory personnel on molecular techniques.
- Trained laboratory staff from sentinel sites on sample collection techniques, storage and shipment.
- Procured and distributed refrigerators for sample storage at sentinel sites.
- Received and tested approximately 25–30 samples every week.
- Collected 168 SARI specimens and 2,279 ILI specimens between 2013 and May 2015.
- Participated in CDC's performance panel and WHO's (Hong Kong) External Quality Assessment Project (EQAP).

### PREPAREDNESS

The Avian Influenza (AI) program, under the Department of Public Health, Ministry of Health, is responsible for coordinating avian influenza preparedness and response and is required to liaise with all national stakeholders in controlling and preventing avian influenza outbreaks.

The AI program is revising the National Influenza Pandemic Preparedness Plan (NIPPP) with assistance

from a WHO consultant. Per the country's Disaster Management Act of Bhutan, 2013, the Ministry of Health has developed a Health Emergency Contingency Plan (HECP). NIPPP and the disease outbreak investigation and control manual will be aligned with the HECP.

### PREPAREDNESS ACTIVITIES

- Trained school health coordinators on influenza case detection and the reporting of influenza illness.
- Trained clinicians on influenza case management and sensitized the general public to influenza transmission and prevention through print, radio, and TV media.
- Developed and printed an event-based surveillance guideline.
- Developed outbreak investigation and control manual.

### TRAINING

- Conducted training for hospital surveillance focal points on the newly designed ILI and SARI web-based reporting system.
- Conducted training on the revised influenza surveillance guideline for clinicians and other health workers involved in influenza surveillance.
- Conducted training for hospital laboratory persons on sample collection techniques, storage and shipment.
- Trained five clinicians, two laboratory persons and one nurse at AFRIMS, Bangkok on operational aspects of an influenza surveillance system.
- Trained three persons from PHL on basic field epidemiology at the FETP Training Centre, Ministry of Public Health, Thailand. Staff who participated held a training on basic field epidemiology for health workers in Bhutan.
- Trained two laboratory personnel on molecular techniques at AFRIMS, Bangkok.
- Trained school coordinators on influenza case detection and reporting.
- Trained approximately 120 village health workers on event-based disease surveillance.
- Trained health workers on Avian and Pandemic Influenza Management Guidelines.

## INFLUENZA VACCINE ACTIVITIES

Influenza vaccination has not been introduced and influenza vaccine is not available in the country. An influenza burden study is planned during the third and fourth years of the cooperative agreement. Findings from the burden study will be presented to the Ministry with policy discussion points related to introducing influenza vaccine in Bhutan.

