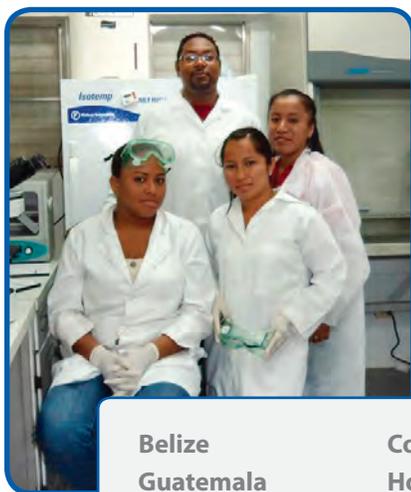
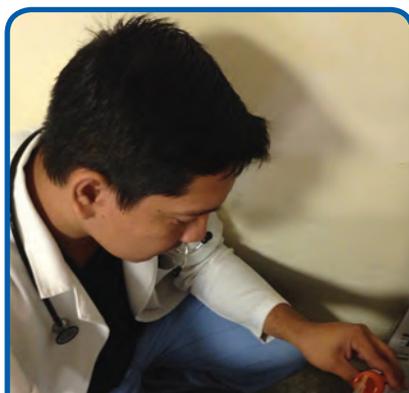


# Central America & Panama (CDC-CAP)



Belize  
Guatemala



Costa Rica  
Honduras



Dominican Republic  
Nicaragua

El Salvador  
Panama

## Overview

Influenza program activities of the U.S. Centers for Disease Control and Prevention's (CDC) Regional Office for Central America provide support to eight countries: Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama and the Dominican Republic. Its main focus is to strengthen capacity to respond to pandemic influenza and to prevent and control seasonal influenza. This included improvement of influenza surveillance and laboratory capabilities, promoting the development of local pandemic plans, supporting targeted research projects, and building the evidence base for decisions on influenza vaccine program expansion.

## Highlights

- Estimated hospitalization costs related to Severe Acute Respiratory Infections (SARI) case-patients in Guatemala, Nicaragua, and Honduras.
- Estimated influenza-like illness (ILI) incidence rates in Guatemala and Costa Rica.
- Estimated the prevalence of influenza and dengue co-infection in hospitalized patients in El Salvador.
- Started a clinical trial about efficacy of early oseltamivir treatment at hospital admission to reduce severity of illness among children in El Salvador and Panama.
- Prepared a generic protocol to estimate influenza vaccine effectiveness.
- Published a manuscript in the WHO Bulletin about the incidence of influenza-virus-associated severe pneumonia in children in El Salvador.

## Surveillance

The Influenza Program supported the expansion of SARI surveillance and helped to standardize the influenza surveillance procedures regionally. The program also supported the development of electronic information systems for SARI, as well as for the national surveillance of respiratory diseases. A generic protocol for the estimation of the effectiveness of influenza vaccine was prepared and authorized; a pilot project was conducted. The incidence rates for ILI were estimated for Costa Rica and Guatemala population; additionally, direct hospital costs related to SARI patients care were also estimated in Guatemala, Honduras and Nicaragua. The Influenza Program conducted the annual assessment for influenza surveillance capacity in the region.

### Surveillance Activities

- Supported the implementation of two sentinel sites for SARI in Guatemala and Panama.
- Provided technical assistance to SARI sentinel sites for developing and updating Standardized Operative Procedures (SOP) for influenza surveillance according PAHO-CDC guidelines.
- Developed, strengthened and migrated information systems into electronic systems for SARI surveillance in sentinel hospitals in Guatemala, Nicaragua and Panama.
- Conducted a surveillance capacity assessment for influenza surveillance in eight countries in the region. Standard instruments and procedures were applied during this assessment.

## Laboratory

In Central America there are eight national laboratories diagnostic capacity for influenza and other respiratory viruses based on immunofluorescence, qRT-PCR and virus isolation. Most countries have already also decentralized immunofluorescence laboratories. The influenza program has supported the improvement of viral culture capabilities, provided reagents and supplies to these laboratories to further support their influenza surveillance. The Influenza Program also supported the development of web-based platform for automated management of data at national laboratories and National Influenza Centers (NIC). Also, technical assistance has been provided to develop laboratory SOPs. An assessment exercise was conducted to the Influenza laboratories in all the countries in the region. Standardized evaluation tools were applied throughout the region.

### Laboratory Activities

- Renovated and secured equipment for virus culture at the National Influenza Center in Nicaragua.
- Provided reagents and laboratory supplies for immunofluorescence tests to the NICs in Nicaragua, Guatemala, Costa Rica and Dominican Republic.
- Provided technical assistance to establish an IFA laboratory for respiratory virus in Guatemala (Coban) and Tegucigalpa (Honduras).
- Applied the laboratory tool throughout the Central American countries. Also, provided support during the assessment and influenza sentinel surveillance in eight CAR countries.
- Provided support for the implementation of the new Information System of Laboratory Surveillance in Honduras and Panama and BO technology in Costa Rica.

## Preparedness

The Influenza Program supported the process of implementing the IHR (2005) in Central American countries, which drove the preparedness and response to pandemic influenza. The Inventory of Core Capabilities for Preparedness and Response for Influenza Pandemic in Central America exercise conducted in many countries provided quantifiable evidence of their progress. During 2012, the Influenza Program conducted the third capabilities inventory exercise, which has been conducted every two years since 2008. The inventory results revealed technical assistance was required in all countries, therefore, the program provided the necessary support to update or rewrite the anti-pandemic preparedness plan in each country.

The Influenza Program prepared a manuscript with the results of the inventory exercises practiced throughout the region in 2008, 2010 and 2012. Also, we provided support for the consolidation of the Electronic Surveillance Project in Panama, Guatemala and Costa Rica and the development of the Surveillance Web Platform.

## Preparedness Activities

- Conducted the National Inventory of Core Capabilities for Pandemic Influenza Preparedness and Response (National Inventory-Scorecard) in eight countries of the region with the help of standardized evaluation tools.
- Provided technical support to update pandemic preparedness plan in CAR countries according results obtained from scorecard evaluation.
- Consolidated the web-based platforms for disease surveillance information systems.
- Supported the implementation of SAP Business Objects software for data integration in the Ministries of Health in Guatemala, Panama, and Costa Rica.

## Training

- Conducted three workshops on direct and indirect cost estimation of hospital personnel who participated in the project on hospitalization costs for SARI cases in Guatemala, Honduras and Nicaragua.
- Conducted a regional workshop on the use of information technology for epidemiological surveillance, designed for Information Technology Specialists working for Ministries of Health in the region.
- Conducted a regional training course on prevention, treatment and research of acute respiratory disease in pediatrics for Guatemalan pediatricians.
- Conducted a clinical practice training course for El Salvador and Panama's Oseltamivir Clinical Trial study teams.
- Conducted training about influenza sentinel surveillance for epidemiologists, clinicians and laboratory specialists in Guatemala, Nicaragua and Honduras.
- Hosted the National Round Table and workshop to support the update of the national influenza surveillance guidelines of Nicaragua.
- Conducted training on how to prepare the protocol for the Influenza Vaccine Effectiveness Project which will be developed in El Salvador, Panama, Costa Rica and Honduras.

## Publications

Clara et al. Estimated incidence of influenza-virus-associated severe pneumonia in children in El Salvador, 2008–2010. *Bull World Health Organ.* 2012 Oct 1;90(10): 756–63. doi: 10.2471/BLT.11.098202. Epub 2012 Aug 6.