

# Mexico



**Capital:** Mexico City  
**Infant Mortality Rate:** 16.26/1,000 live births  
**Population:** 118,818,228 (July 2013 est.)



## Overview

Since September 2006, CDC has supported influenza surveillance in Mexico through a cooperative agreement. The agreement has helped to strengthen federal, regional and local influenza surveillance sites by funding training, equipment and coordination of activities of laboratories and epidemiology units. The Mexican National Laboratory Network consists of a National Influenza Center (NIC), the Institute for Epidemiologic Diagnosis and Reference (InDRE) that coordinates training, quality control and reporting for 31 state laboratories and eight laboratories of health institutes. The cooperative agreement has assisted Mexico's Secretariat of Health (SOH) by increasing influenza laboratory capacity in Mexican states and improving diagnostic protocols.

Mexico's outbreak response begins with local-state level investigations that are then assisted, if needed, by the Mexican Federal SOH. This response system was instrumental during the pandemic and remains the cornerstone of binational collaboration during the investigation of public health events of international concern.

## Highlights

- Reduced the number of sentinel sites from 740 to 700. Disease definitions were also reviewed and brought into alignment with PAHO and WHO protocols.
- Shared human-animal surveillance data on a more regular basis.
- Updated the National Plan for Preparedness and Response to Human and Animal Influenza.

## Surveillance

Mexico's influenza surveillance system is based on local sentinel sites that are spread out in all 31 states. Over the course of the CDC cooperative agreement the surveillance network has grown; it started with less than 100 sites and now has grown to more than 700 units. Each year this sentinel network along with the influenza surveillance regulations, which are national and obligatory for all states, are revised by the National Epidemic Surveillance Committee.

The purpose of the units is to collect detailed information of all ILI cases and take laboratory samples from hospitals and primary health care centers to monitor influenza strains. Epidemiologic and laboratory data are collected at the local level and sent to centralized databases that facilitate rapid analyses, interpretation, and response to influenza activity throughout the country.

Mexico's National Epidemic Surveillance System, (SiNaVE), detects the time when influenza virus activity starts and when the season can be determined as active. For 2012–2013, the Directorate General of Epidemiology (DGE) used methods recommended by CDC Influenza Division staff to calculate ILI/SARI activity and seasonal baselines. For the 2012–2013 season, the national baseline established was 0.36% of ILI/SARI consultations with 12.26% flu positivity. Using the formulas to calculate this threshold assists Mexico with better using surveillance data to recognize the start of the influenza season each year.

## Surveillance Activities

- Developed a weekly newsletter that is distributed to the national epidemiological network and shared with partners.
- Based on lessons learned from the 2009 influenza A (H1N1) pandemic, the SOH has updated and improved the quality of data that is collected in the Mexican National Influenza Surveillance System.

## Laboratory

InDRE serves as a full-service national public health laboratory, performing surveillance and diagnostic-reference testing for a broad range of agents and diseases, including respiratory viruses, rabies and arboviruses. As Mexico's NIC, InDRE cultures influenza viruses, conducts real time qRT-PCR testing for respiratory samples and sequences viral isolates.

InDRE also provides oversight and proficiency testing for the national network of laboratories several times a year. It has also developed an ambitious program to grow capacity with a new building, built with international standards and increasing the laboratory's infrastructure with several BSL-3 laboratories.

### Laboratory Activities

- Retained the capacity to do full antigenic and genetic characterization of influenza viruses as well as isolate influenza viruses at InDRE.
- Performed influenza testing through real-time qRT-PCR in all 31 labs in the National Public Health Laboratory Network.
- Detected four influenza cases with oseltamivir resistance mutation H275Y without epidemiological association and has reported them to the World Health Organization (WHO) according to International Health Regulations 2005 (IHR).
- Developed an online platform to centralize data access and improve the communication system between the 31 state laboratories and InDRE.
- Achieved perfect qualifications since 2010 on WHO's laboratory's performance assessment.
- Obtained international quality certification ISO-9001-2008.

## Preparedness

The National Influenza Preparedness Plan was updated after the 2009 H1N1 pandemic and again in 2012–2013 following a Monitoring and Evaluation assessment with DGE, InDRE and CDC staff. The National Laboratory Network was fully strengthened with diagnosis protocols based in real-time qRT-PCR and viral culturing. Mexico is part of the North American Plan for Animal and Pandemic Influenza (NAPAPI), in partnership with Canada and the United States.

A pilot project is being developed to evaluate disease in both humans' and animals' routine communication and influenza information sharing between SENASICA and DGE has been established. In 2013, national influenza guidelines will consider a set of sentinel sites around farms to evaluate disease behavior in animals and humans.

## Preparedness Activities

- Conducted a Monitoring and Evaluation of the National Inventory of Core Capabilities for Pandemic Influenza Preparedness and Response with CDC staff, InDRE, DGE to revise the National Pandemic Preparedness Plan.
- Updated the National Pandemic Preparedness Plan to include the coordination of local and state plans and activities.
- Equipped the rapid response teams (RRT) in each state in Mexico with medical doctors, epidemiologist, and laboratory staff.
- Reviewed the national stockpiles and medical equipment quantities in the event of a surge as part of the monitoring and evaluation of pandemic preparedness undertaken.

## Training

Mexico's SOH hosted the following training activities in 2012:

- Updated the National Public Health Laboratory Network leaders with regard to pandemic coordination.
- Several local epidemiologists are now studying for their Master's Degree in Public Health with the National Institute of Public Health.
- Developed Level Two of the Incident Command System Course for federal staff, in cooperation with the Public Health Agency of Canada.
- Conducted regional and national meetings with the National Epidemic Surveillance System [SiNaVE] on influenza surveillance, preparedness and response.