

# BRAZIL



The Brazil Ministry of Health Influenza Surveillance Team (Fabiano Marques; Francisco Junior; Sabrina Mendes; Walquiria Almeida; Swamy Palmeira; Daiana Silva; and Juliana Leite).

## OVERVIEW

Since 2011, the Ministry of Health (MoH) has been developing activities to strengthen influenza surveillance in order to understand the epidemiology of circulating viruses. Brazil, a large country with different climatic regions, experiences variation in influenza seasonality and outbreaks both temporally and geographically. In each of the 27 states of the Brazilian Federation there is an epidemiological team and a Central Laboratory from the State Secretariat of Health. The national influenza surveillance network has 146 Sentinel Units for influenza-like illness (ILI) surveillance, and 132 Intensive Care Units for severe acute respiratory infection (SARI). The number of sentinel units varies by state. Data collected are included in national databases: Sivep-Gripe for ILI and SINAN for sentinel surveillance and SARI surveillance. The laboratories process the clinical material and test for respiratory viruses by immunofluorescence (IFAT) assays using a commercial kit (RSV, adenoviruses, parainfluenza virus 1-3, influenza A and B viruses). Central laboratories in 16 states also perform influenza virus detection by real-time RT-PCR using CDC primers and probes. The results are added to databases and analyzed by the state epidemiological teams and the MoH.

## HIGHLIGHTS

- Published the treatment protocol for suspected cases of influenza.
- Conducted an annual influenza vaccination campaign and included new priority groups for influenza vaccination.
- Conducted an influenza vaccine effectiveness study in Brazil.
- Conducted online courses for clinical treatment and surveillance of influenza.

## SURVEILLANCE

Influenza surveillance in Brazil consists of both sentinel surveillance for ILI and SARI in intensive care unit inpatients and universal surveillance for SARI.

Sentinel surveillance is based on a network of health units distributed in all geographic regions of the country and the principal objective is to identify the circulating respiratory viruses in order to provide data to support the seasonal influenza vaccine composition recommendations. In addition, the surveillance system allows tracking of health system needs due to these respiratory viruses.

Currently the country has 76 municipalities with sentinel sites for influenza (ILI and SARI), and 278 SARI sites. The universal SARI surveillance monitors the hospitalizations and deaths due to influenza and helps with understanding the epidemiology of influenza in the country and guides decision-making in the Ministry of Health and the States and Municipal Health Secretariats. Data are collected through standardized forms and entered in the electronic health surveillance systems: Sivep-Gripe and SINAN Influenza Web for timely analysis.

## SURVEILLANCE ACTIVITIES

- Conducted a workshop to update the treatment protocol for suspected cases of influenza.
- Developed surveillance guidelines and contingency plans for influenza.
- Conducted regional meetings and supervisory visits.
- Provides weekly technical reports.

## LABORATORY

The network of the National Influenza Center (NIC) laboratories in Brazil, has three central laboratories: Evandro Chagas Institute (IEC) in Belém/Pará State; Adolfo Lutz Institute (IAL), in Sao Paulo and the Oswaldo Cruz Foundation (FIOCRUZ), in Rio de Janeiro which is also a National Reference laboratory for the MoH. In addition the NICs have 27 laboratories, in federal units and each NIC directs a number of laboratories for monitoring and supervision. The samples (nasopharyngeal aspirates or combined swabs) are collected at sentinel units and hospitals and a nationally standardized form is used to assess clinical and epidemiological information.

Data are included in National Databases—Sivep-Gripe and SINAN for sentinel surveillance and universal surveillance, respectively. The laboratories process the clinical material and test for respiratory viruses in IFAT assays using commercial kits. Central Laboratories in 16 states also perform influenza detection by real Time RT-PCR using CDC primers and probes.

### LABORATORY ACTIVITIES

- Tested 36,134 samples in 2013 and 18,488 in 2014 in the SARI universal surveillance system.
- Conducted a training course on Influenza Virus Phylogenetic Studies.
- Conducted training for the analysis of antiviral resistance testing (FIOCRUZ).
- Tested 16,856 samples in 2013 and 20,638 in 2014, in the sentinel surveillance system.
- Expanded and modernized laboratories and enhanced capacity.

## PREPAREDNESS

The MOH of Brazil has a Contingency Plan for Influenza which was developed after the 2009 influenza pandemic. The plan is updated as needed and WHO information on the circulation of animal influenza around the world is included. All recommendations of the plan follow the guidelines of the U.S. CDC and WHO. Currently this plan is being updated and will be available on Brazil's website.

## PREPAREDNESS ACTIVITIES

- Conducted training for leaders of Federal Units of Brazil on the Contingency Plan Matrix.
- Conducted regional training seminars for the development of the Influenza Contingency Plan and plans for other diseases.
- Conducted meetings with the Ministry of Agriculture for discussion and actions regarding avian influenza.
- Developed an inter-ministerial technical group for pandemic preparedness planning.
- Worked with the Ministry of Agriculture to develop a plan to monitor influenza viruses in migratory birds.

## TRAINING

- Conducted training for ILI and SARI (ICU) sentinel surveillance and universal surveillance for SARI.
- Conducted trainings and a meeting on the burden of disease for influenza.
- Training for Contingency Plan Development for Influenza.
- Conducted training for Sivep-Gripe and SINAN web sites.
- Conducted training on influenza data analysis.

## INFLUENZA VACCINE ACTIVITIES

In Brazil between 1999 and 2010, vaccination with seasonal influenza was available only for the elderly and some high risk groups. The evaluation of coverage was available only for the elderly group. The evaluation of coverage highlights that in 1999 the vaccination only included those 65 years of age and older.

In the elderly, over the period from 1999 to 2014, the vaccination coverage was high, between 64.78% (2000) to 87.9% (2013). The number of doses administered rose from 7.5 million (1999) to 18 million doses (2014) because of the growth of the elderly population.

Beginning in 2011, influenza vaccine coverage expanded to new groups with a significant increase in the amount of administered doses. In 2013, more than 35 million doses of seasonal influenza have been administered to the eligible groups. As with the vaccination of the elderly, vaccination coverage in these eligible groups remained above the set target



of 80% coverage, except for pregnant women and indigenous peoples where coverage remains less than optimal.

## RESEARCH

In partnership with the Brazilian Ministry of Health and state health departments, CDC provides technical assistance to generate data for the design of influenza prevention and control strategies in the country. Ongoing projects evaluate the impact of influenza vaccination, burden of influenza disease, pandemic preparedness, and influenza vaccine effectiveness.

Primary activities include:

- Assessing the impact of seasonal influenza vaccination among persons 60 years and older on rates of influenza-associated mortality and hospitalization from 1994 to 2009, in São Paulo State, Brazil.
- Documenting the reemergence of influenza A (H1N1pdm09) virus in 2013, São Paulo, Brazil.

Additionally, Brazil is part of a multi-country evaluation of seasonal influenza vaccine effectiveness among high risk groups targeted for vaccination, a PAHO-sponsored initiative through REVELAC-i (Network for Evaluation of Influenza Vaccine Effectiveness).