

Brazil



- **Capital:** Brasilia
- **Area:** 8,514,877 sq km
- **Population:** 205,716,890 (July 2012 est.)
- **Age Structure:** 0-14 years: 26.2% (male 27,219,651/female 26,180,040); 15-64 years: 67% (male 67,524,642/female 68,809,357); 65 years and over: 6.7% (male 5,796,433/female 7,899,650) (2011 est.)
- **Life Expectancy at Birth:** Total population: 72.79 years; male: 68.24 years; female: 76.53 years (2012 est.)
- **Infant Mortality Rate:** Total: 20.5 deaths/1,000 live births; male: 23.9 deaths/1,000 live births; female: 16.93 deaths/1,000 live births (2012 est.)
- **Literacy Rate:** Total population: 88.6%; male: 88.4%; female: 88.8% (2004 est.)
- **GDP:** \$2.282 trillion (2011 est.)
- **GDP per Capita:** \$11,600 (2011 est.)

U.S. CDC Direct Country Support

Brazil launched its national influenza surveillance system in 2000. After the pandemic, there was a need to adapt the strategy of influenza surveillance in Brazil and obtain a better understanding of the clinical, epidemiological and etiological cases of severe acute respiratory infection (SARI) since a variety of agents, beyond influenza are responsible for most of these cases and occurrence may occur in clusters of cases that deserve specific and timely interventions.

Given the need to structure influenza surveillance in Brazil to improve prevention and control activities and identify unusual or new human influenza subtypes, the Ministry of Health (MOH) issued ordinance Official n. 2,693 in 2011. This promotes the strengthening of epidemiological surveillance for influenza in 72 priority municipalities. This will be developed through financial transfers to municipality units. This ordinance also calls for a new model of sentinel surveillance for influenza and establishes criteria for these units in Brazil.

In this new structure, the sentinel influenza surveillance sites have three components: surveillance for severe acute respiratory infection (SARI) cases; influenza-like illness (ILI) cases and weekly aggregate reporting of SARI cases.

Surveillance

The epidemiological surveillance activities for the monitoring of influenza-related respiratory diseases in 2011 are available in the *Brazilian Preparation Plan for Coping with Pandemic Influenza and Protocols for Epidemiological Surveillance of Influenza H1N1 2009 Pandemic: Notification, Research and Monitoring and Clinical Management of SARI*. These documents were based upon recommendations from the World Health

Organization (WHO) to: reduce morbidity and mortality, optimize existing resources through appropriate planning and programming and reduce the socio-economic burden, and impact upon national essential services functioning during an influenza pandemic.

Surveillance Activities

With regard to routine influenza surveillance, the state and municipal health departments:

- monitor unusual events.
- investigate serious cases.

In outbreak situations, the state and municipal health departments are prepared to:

- monitor acute respiratory infections and viruses circulating.
- maintain and update information.

Laboratory

Three central laboratories: Instituto Evandro Chagas (IEC) in Belém, Pará State, northern Brazil; Instituto Adolfo Lutz (IAL), in Sao Paulo; Oswaldo Cruz Foundation (Fiocruz), located in Rio de Janeiro, are classified as National Influenza Centers (NIC) in Brazil.

In addition to the NICs, an additional 27 laboratories also conduct surveillance, one in each federal unit. In 2011, this network of laboratories tested an average of 14,837 (5,214



The Brazilian influenza team.

cases of SARI and 9,173 cases of ILI) clinical samples of nasopharyngeal swabs. It is anticipated that in 2012, the network will process an average of 60,000 samples. The laboratory techniques utilized are: indirect immunofluorescence (IIF) and RT-PCR in real-time.

Laboratory Activities

- In 2011, the ILI sentinel sites sent 9,173 influenza clinical samples of nasopharyngeal secretions to the laboratory network to identify influenza virus. These samples identified 25.7% influenza A viruses and 13.6% for influenza B, by IIF technique. These units report weekly the number of visits, general and ILI cases to the electronic Information System of Epidemiological Surveillance of Influenza (Sivep_Gripe).
- One of the goals of the system is the identification of respiratory viruses circulating in the country. The system also allows for monitoring of the demand for care by the ILI sentinel sites.
- The hospitalized cases of SARI reported in 2011 were more concentrated in cities in the South and Southeast regions of the country. Influenza A/H1N1 2009 was confirmed in the following cities: Belo Horizonte (568 reported cases), Porto Alegre (346), São Paulo (189) and Curitiba (171).
- The NICs received 5,214 clinical samples of nasopharyngeal swabs from SARI cases in hospital, 790 were from Fiocruz, 905 from IEC and 3,519 from IAL. The notification of these cases has been done since the 2009 H1N1 pandemic, using the web-based National Notifiable Disease Information System (Sistema de Informação de Agravos de Notificação Compulsória). Influenza outbreaks are reported through a national information system (Sinan.net) designed to report outbreaks.
- Students from the Brazilian Field Epidemiology Training (FETP) Program participate in investigations of outbreaks and cases of SARI and ILI in the field.

- The MOH publishes an epidemiological bulletin monthly on its website (www.saude.gov.br/svs) with information on cases of SARI and ILI from sentinel sites.
- The NICs send samples of influenza viruses to WHO Collaborating Centers (CC), upload data to FluNet, and also work regularly with collaborators to develop quality control.
- The influenza MOH team has a general coordinator as well as epidemiological and laboratory coordinators. The team has five professionals who work directly with influenza surveillance in the country; one of them works with the administration of the CDC cooperative agreement.

Preparedness

In 2011, Brazil strived to strengthen influenza surveillance with new strategies and guidelines.

Preparedness Activities

- Studying the epidemiological profile of influenza in Brazil.
- Increasing the overall number of specimens collected in all Brazilian geographical regions.
- Monitoring the expansion of existing and new influenza sentinel sites.
- Decentralizing the real-time RT-PCR capabilities to provide capacity for all federal units in the country.
- Integrating epidemiological and laboratory surveillance.
- Enhancing the strategies and measures for control and prevention of influenza in Brazil.

Training

The following trainings were held in Brazil in FY 2011:

- The MOH developed a comprehensive peer training activity for professional workers in the following parts of the national health system: basic health, family health, high complexity services, emergency care, rescue, and public education. These professionals then provided the same training to their state partners.
- Training on treatment and clinical management protocols was conducted.
- This material is the basis for all regional courses for professionals and is available on the MOH web site.
- The NICs provided training in real-time RT-PCR for influenza diagnosis for the state lab network.
- The Brazil MOH hosted train-the-trainer sessions to develop rapid response teams in all states, including remote states.
- The influenza team at the Brazil MOH developed a web course about influenza surveillance to be provided in 2012 in all States and the Federal District.

Contacts

Cláudio Maierovitch Pessanha Henriques, MD
 Director, Department of Epidemiological
 Surveillance (DEVIT)
 Health Surveillance Secretariat
 Ministry of Health
 Brasilia, Brazil
 Email: gripe@saude.gov.br

Marcia Lopes Carvalho, MD
 Coordinator, Respiratory Diseases (CGDT)
 Health Surveillance Secretariat
 Ministry of Health
 Brasilia, Brazil
 Email: marcia.lcarvalho@saude.gov.br