

Morocco



Capital: Rabat

Infant Mortality Rate: 25.49/1,000 live births

Population: 32,649,130 (July 2013 est.)



Overview

The Kingdom of Morocco's National Institute of Hygiene (NIH) is both a National Influenza Center (NIC) and the recipient of a U.S. Centers for Disease Control and Prevention (CDC) cooperative agreement Strengthening Influenza Surveillance Networks in Morocco. The NIH was initially funded in 2006 to strengthen laboratory and epidemiology capacity for influenza surveillance.

The NIH has developed a web-based database to collect both epidemiologic and laboratory information related to influenza-like illness (ILI) and severe acute respiratory infection (SARI). The NIH collaborates on influenza surveillance activities in the 16 administrative regions of Morocco with the epidemiological disease and surveillance units in the country's Ministry of Health (MOH).

Highlights

- Awarded Vaccine Policy Cooperative Agreement.
- Received ILI samples from both a private physicians' network and from a health unit network; received SARI samples from SARI sites in regional hospitals.
- Processed 862 samples, of which 245 were positive for influenza.
- Performed testing for other respiratory pathogens, including RSV, adenovirus, and parainfluenza.

Surveillance

Morocco's MOH uses multiple surveillance systems to characterize the epidemiology of influenza, both for the observation of seasonal influenza trends, and to be prepared in the event of a pandemic. SARI is tracked through a network of 16 regional hospitals where syndromic and virologic data are collected. ILI is tracked through a network of 380 health units and a network of 110 private physicians. Sixteen of the 380 health units collect both syndromic and virologic data.

The internet database developed by the NIH provides instant notification of influenza activity. Influenza data are entered into the database by the sentinel sites and the NIC.

Surveillance Activities

- Continued to test influenza specimens, despite challenges accessing funds.
- Tested 862 specimens during the 2011–2012 season. Seventy-four percent (638) of specimens were collected by the ILI surveillance system, at sites in both the private physician network and the health unit network. The remaining 224 specimens were obtained from SARI surveillance sites in regional hospitals.
- Twenty-eight percent of specimens were positive for influenza, including 231 A(H3N2), 13 B viruses, and one A(H1N1)pdm09 virus. Specimens were also tested for RSV, adenovirus, and parainfluenza.

Laboratory

Morocco's surveillance network includes one NIC and 16 regional laboratories. The NIC has the capacity to conduct real-time PCR testing, virus culturing, HAI testing, DFA testing, sequencing and phenotypic analysis of drug susceptibility. Four regional laboratories are equipped with PCR machines.

Laboratory Activities

- Procured laboratory consumables and standard reagents, such as immunofluorescence assay (IFA) kits, PCR reagents, and bacterial tests.

Training

- Attended the Data Management and Basic Epidemiologic Analysis for Influenza Training Course in Johannesburg, South Africa, November 2011.
- Attended the 3rd Annual African Network for Influenza Surveillance and Epidemiology (ANISE) Meeting in Nairobi, Kenya, February 2012.
- Attended the WHO/CDC Influenza Data Management Training in Cairo, Egypt, April 2013.

Publications

Barakat A, Ihazmad H, El Falaki F, Tempia S, Cherkaoui I, El Aouad R. 2009 Pandemic influenza A virus subtype H1N1 in Morocco, 2009–2010: epidemiology, transmissibility, and factors associated with fatal cases. *J Infect Dis.* 2012 Dec 15;206 Suppl 1:S94–100. doi: 10.1093/infdis/jis547.

Radin JM, Katz MA, Tempia S et al. Influenza surveillance in 15 countries in Africa, 2006–2010. *J Infect Dis.* 2012 Dec 15;206 Suppl 1:S14–21. doi: 10.1093/infdis/jis606.