

Mongolia



Capital: Ulaanbaatar
Infant Mortality Rate: 34.78/1,000 live births
Population: 3,226,516 (July 2013 est.)



Overview

Influenza-like illness (ILI) has been a serious public health challenge in Mongolia since the 1970's, due to rapid growth in population size and urbanization. Mongolia's National Influenza Center (NIC) was established in 1974 and joined the WHO Global Influenza Surveillance and Response System (GISRS) in 1978. As a result of political and economic transition, the system suffered serious damage in the 1990's. In 2004, Mongolia began working with CDC's Influenza Division to increase the capacity of their influenza surveillance, laboratory and preparedness activities. This partnership restored the system and improved its quality. Surveillance sites routinely enter ILI data into Mongolia's web-based Flu Information System (FIS). FIS allows the surveillance sites to access laboratory results from their own sites and to see surveillance summary reports in real time. The country has also developed a special program for the real-time, online reporting of influenza and ILI events where patient data is linked to specimens sent to the NIC from surveillance sites.

Highlights

- Established a working group to develop a sustainability plan for the influenza surveillance system consisting of representatives from national and local levels.
- Calculated ILI rates for the Mongolia Provinces of Dornogovi, Dornod, Uvurkhangai, Selenge and Khovd for the first time and samples have been tested.
- Conducted influenza genome sequencing for seasonal influenza viruses which has become a routine activity.

Surveillance

Mongolia has established outpatient and inpatient information in their Influenza Sentinel Surveillance Sites (ISSS). The ISSS information of Influenza-like Illness data is routinely entered into FIS. Mongolia has developed and installed an on-line program (FLULAB 1.0) to provide information on database samples, laboratory testing protocols, inventory system for reagents, and supplies.

Surveillance Activities

- Using Skype, improved communications for weekly audio-conferencing from the NIC to all local ISS sites. These calls include pediatricians from the National Center of Maternal and Child Health to provide advice to clinicians on the clinical management of severe acute respiratory infection (SARI) cases in the sentinel hospitals.
- Reported 22,297 SARI cases (8.6% of all admissions) with 36 (0.2%) deaths registered from thirty seven hospital-based ISSSs.
- Provided technical assistance visits to sentinel sites in the Sainshand and Zamyn-Uud soums of the Dornogovi Province and Baganuur, District of Ulaanbaatar city. The NIC team included virologists, epidemiologists, and researchers from the Virology Department, Tohoku University's School of Medicine in Japan.

Laboratory

Influenza virological surveillance in Mongolia is based on weekly collection of samples from ISSSs and from the detection and identification of influenza viruses by real-time RT-PCR. The influenza positive specimens were inoculated on MDCK cells and the HA, NA and M genes of representative isolates were sequenced and submitted. The susceptibility of viruses to NA inhibitors (oseltamivir and zanamivir) were examined by chemoluminescent assay using the NA-Star kit and sequence analysis on NA gene if the IC50 value increased. Randomly selected samples from influenza negatives were tested by real-time multiplex PCR for other respiratory viruses.

Achieving 100% accuracy during assessment testing, the Virology Laboratory (VL) at the NIC joined the WHO External Quality Assessment Project. The VL participating in Influenza Performance Evaluation Program conducted by U.S. CDC, Atlanta was also 100% accurate. The VL was assessed using the International Influenza Laboratory Capacity Review Tool developed by CDC and the American Public Health Laboratory (APHL). Following the assessment, APHL and CDC provided technical assistance designed to improve laboratory capacity.

The specialists from Mongolia NIC have done follow up visits to the regional laboratories in Orkhon, Darkhan-uul provinces and provided technical assistance on testing protocol, primers & probes, RNA extraction, and software program of the RT-PCR equipment used by each laboratory. Through CDC project funds, the VL and National Center of Communicable Diseases (NCCD) have provided the necessary reagents, kits and laboratory supplies for use in the regional virology laboratories.

Laboratory Activities

- Processed approximately 300–600 specimens per month during peak influenza season, dropping to around 50 per month outside the normal influenza season.
- Conducted surveillance testing year round.
- Collected specimens at a number of hospitals and sentinel sites within Ulaanbaatar City and from two regional laboratories and sentinel sites located elsewhere in the country.

Preparedness

The Mongolia NIC has provided technical assistance to health care facilities and relative agencies to prepare for influenza A (H7N9) and MERS-CoV infections. Revised guidelines developed by WHO have been translated into Mongolian.

Preparedness Activities

- Conducted a Laboratory Capacity Review in 2013.
- Translated the WHO document Pandemic Influenza Preparedness: Framework (PIP Framework) into Mongolian and published it in Mongolian Journal of Infectious Disease Research.

- Established regional virology laboratories in Khovd and Dornod Provinces in July 2013 with the procurement of RT-PCR machines, centrifuges and some accompanying devices - conducted surveillance testing year round.
- Provided reagents, kits and laboratory supplies for regional virology laboratories for the 2012–2013 season.

Training

- Provided training on laboratory diagnosis of A (H7N9) avian influenza for laboratory specialists of NCCD, National Center for Zoonotic Diseases (NCZD), Veterinary Laboratory and Regional Virology laboratories (15 participants).
- Participated in regional training on sequencing and phylogenetic analysis of influenza viruses for National Influenza Center laboratory staff in Melbourne, Australia, supported by WHO Western Pacific Regional Office (WPRO).
- Organized a workshop on the calculation of tolerant limits for Dornogovi, Dornod, Uvurkhangai, Selenghe and Khovd Provinces and obtained results for use in epidemiological analysis.
- Attended the WHO Consultation Meeting on Global Influenza Surveillance in Switzerland, Geneva.
- Attended the Influenza Data Management and Epidemiological Analysis Training Course in Phnom Penh, Cambodia.

Publications

Baigalmaa J, Tuul T, Darmaa B, Soyolmaa E. Analysis of fatal outcomes from influenza A(H1N1)pdm09 in Mongolia. *Western Pac Surveill Response J.* 2012 Aug 31;3(3):43–8. doi: 10.5365/WPSAR.2010.1.1.006. Print 2012 Jul.

Members of the Western Pacific Region Global Influenza Surveillance and Response System. *Epidemiological and Virological Characteristics of Influenza in the Western Pacific Region of the World Health Organization, 2006–2010.* *PLoS One.* 2012;7(5):e37568. doi: 10.1371/journal.pone.0037568. Epub 2012 May 29.

Members of the Western Pacific Region Global Influenza Surveillance and Response System. Seasonal influenza vaccine policies, recommendations and use in the World Health Organization's Western Pacific Region. *Western Pac Surveill Response J.* 2013 Mar 3;4(3):51–9. doi: 10.5365/WPSAR.2013.4.1.009.