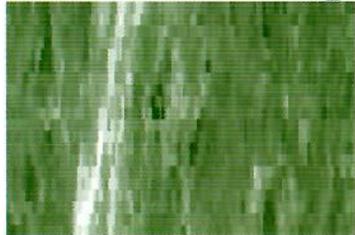




# NIC Newsletter

National Influenza Centre, Bangladesh

## Influenza Surveillance in Bangladesh



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The World Health Organization (WHO) estimates that approximately 5-15% of the world population are affected with upper respiratory tract infections, five million cases of severe illness occur and up to 500000 people die from influenza each year. The highest burden of severe disease in terms of hospitalization and death occurs in infants and young children, elderly people, patients with underlying medical conditions and pregnancy. Current circulating influenza strains in human include influenza A(H1N1pdm09), influenza A (H3N2), and influenza B virus both B/Victoria and B/Yamagata lineage.

Human infections are primarily acquired through direct contact with infected person or contaminated environments. Avian, swine and other zoonotic influenza virus infections in human may cause disease ranging from mild upper respiratory tract infection (fever and cough), early sputum production, rapid progression to severe pneumonia, sepsis with shock, acute respiratory distress syndrome and even death.

The majority of human cases of avian influenza A(H5N1) and A(H7N9) virus infection have been associated with direct or indirect contact with infected live or dead poultry. To minimize public health risk, routine surveillance in both human and animal populations and pandemic preparedness planning are essential. Till now Pandemic Potential Viruses are avian influenza A(H5N1), A(H7N9). Since 2013, 860 human cases of avian influenza A

(H5N1) are identified, among them 454 died (case fatality 52.7%). Similarly from 2013 to till date avian influenza A(H7N9) related total human cases is 1567 in human with 623 deaths (case fatality 38.4%). In Bangladesh, 8 human cases with influenza A(H5N1) and one with influenza A(H9N2) infection have been reported through surveillance platform till now.

There are several influenza surveillance platforms in Bangladesh. National Influenza Surveillance, Bangladesh (NISB) performs ongoing surveillance for influenza and severe respiratory disease at 10 district hospitals in Bangladesh from May 2010 till date. Hospital Based Influenza Surveillance (HBIS) is another surveillance platform for influenza and severe respiratory disease at 8 tertiary level hospitals across Bangladesh, jointly conducted by IEDCR and icddr,b since May 2007. High risk group surveillance of avian Influenza started in mid January 2008 with objective of regular monitoring of people at risk during outbreak of Avian Influenza from the affected districts. Wet Market Surveillance for influenza A (H5N1) in Dhaka City Corporations (was in 2006-07 and from 2011 to 2016 jointly by IEDCR and icddr,b) has identified three H5 human cases. Event Based Surveillance from 2017 is continuing with support of 24/7 hotline, media monitoring and any informal reporting. Web Based Integrated Disease Surveillance and Cell Phone Based Surveillance are also going on for monitoring Influenza activities.



**Institute of Epidemiology, Disease Control & Research (IEDCR)**  
**National Influenza Centre (NIC)**

Mohakhali, Dhaka- 1212, Bangladesh

Contact: Tel. No. +880-2-9898796, 9898691. FAX : +880-2-8821237; website: www.iedcr.gov.bd Hot Line: +8801937000011; +88001937110011

Fig. 01 National Influenza Surveillance (NISB) seasonality graph

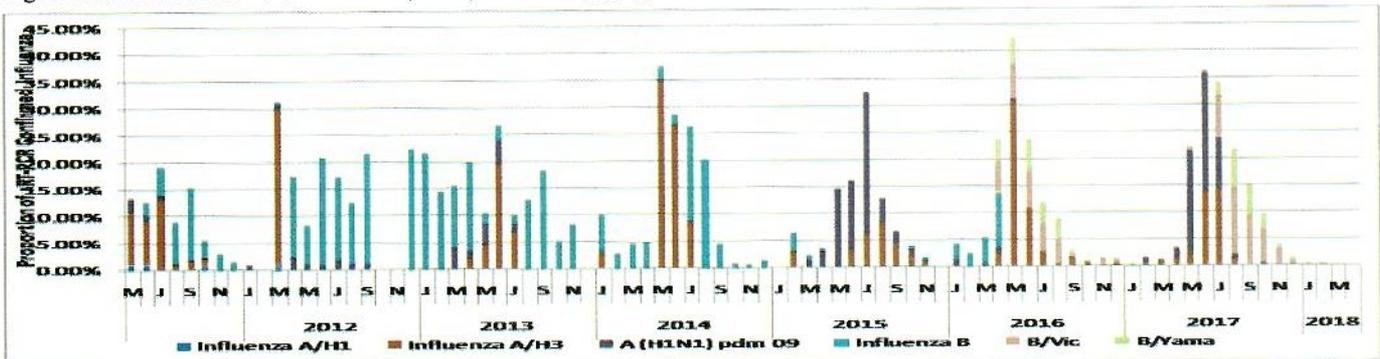
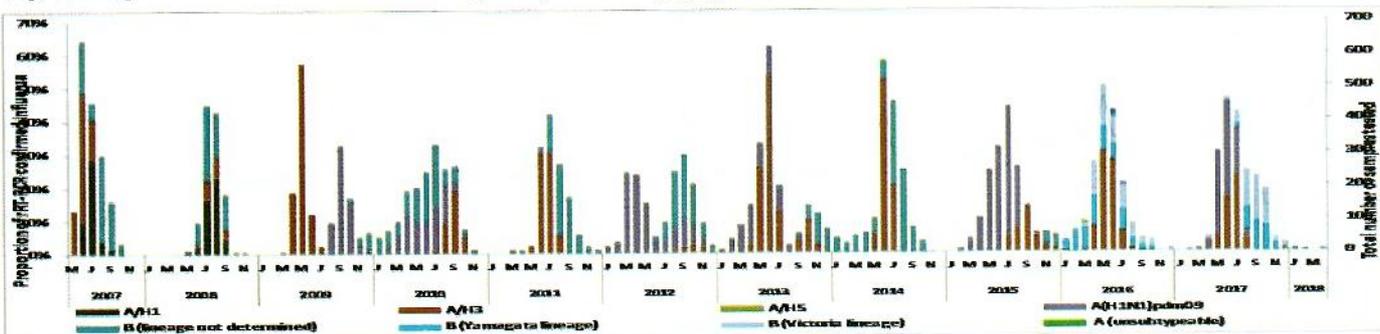


Fig. 02 Hospital Based Influenza Surveillance (HBIS) seasonality graph



Graphs showing seasonality of influenza activity in Bangladesh from NISB and HBIS data. It is apparent that, currently influenza positivity is lower in comparison to the previous years.

Graphs showing seasonality of influenza activity in Bangladesh from NISB and HBIS data. It is apparent that, currently influenza positivity is lower in comparison to the previous years.

## EDITORIAL

Influenza Surveillance is an essential component for disease prevention and control. Often these surveillances serve as early warning system and to guide health policy and strategies. IEDCR, the designated National Influenza Centre (NIC) by WHO, uploads National Influenza Surveillance, Bangladesh (NISB) and Hospital Based Influenza Surveillance (HBIS) epidemiological and virological data on a global web-based tool for influenza virological surveillance, ‘FluNet’ and on a global influenza data sharing platform ‘FluID’ every week. Thus contributes in global influenza surveillance data management.

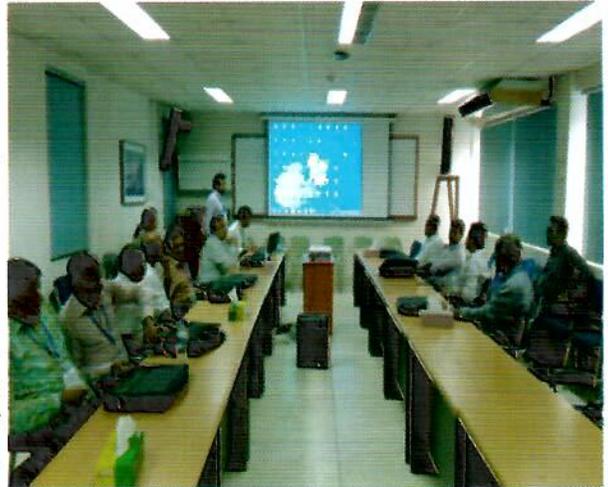
Clinical specimens following case definition are transported to IEDCR for influenza typing and sub-typing. According to the requirement of Global Influenza Surveillance and Response System (GISRS), quarterly samples are shipped to WHO Collaborating Centre (CC) for vaccine strains selection.

If any novel influenza A is detected, immediate reporting is done to WHO through International Health Regulations (IHR). Moreover, the surveillance is essential for monitoring seasonal variation of influenza and early warning of pandemic situation in the country.

IEDCR organizes advocacy meeting with health managers and training or refresher training program for clinicians, nurses and medical technologists. Surveillance data is disseminated yearly to the policymakers, stakeholders and surveillance teams.

## **Refresher Training for Surveillance Physicians**

A refresher training took place with NISB surveillance physicians on 18 April, 2018. IEDCR NISB team (Dr. Salimuzzaman, Dr. Tahmina Shirin, Dr. AKM Muraduzzaman, Dr. Monalisa and Dr. Awlad Hussain) facilitated the training. Surveillance physicians from different NISB sites attended the training. Updated Influenza Like Illness (ILI) and Severe Acute respiratory Infections (SARI) data collection tools were described and demonstrated to the surveillance physicians in that training. IEDCR NISB team explained the current NISB situation. The challenges and working condition were pointed out by the surveillance physicians of respective sites in a session and most applicable recommendations were given by IEDCR NISB team.



Refresher training of Surveillance physicians



Meeting with Surveillance Team in Patuakhali

## **National Influenza Surveillance, Bangladesh (NISB) site Supervision and Monitoring**

IEDCR conducts regular supervision and monitoring activities in surveillance sites. During these visits, meetings are arranged with surveillance team of the hospital. ILI and SARI sample collection technique and storage are monitored as well, ensure deviations from guidelines. If challenges occur in those surveillance sites, immediate actions are taken to ensure quality data, sample collection and transportation to IEDCR.

## **Seasonal Flu Deaths More Common Worldwide than Expected**

According to new estimates from the Centers for Disease Control and Prevention (CDC) and global health partners almost 291,000 to 646,000 people die each year globally from seasonal influenza-related respiratory illnesses.

The new estimates are higher than the previous estimate of 250,000 to 500,000 deaths annually. The estimates were calculated using data from 47 countries between 1999 and 2015, and excluded deaths during pandemics.

## **Japan Approves New Drug for Influenza**

Japan's health ministry has approved Baloxavir Marboxil tablets (Xofluza, Shionogi & Co Ltd), a drug that reportedly can kill influenza types A and B.

In an article of the Wall Street Journal, according to the company (Xofluza, Shionogi & Co Ltd), Baloxavir Marboxil has a novel cap-dependent endonuclease inhibitor that can kill influenza viruses in 24 hours, although some symptoms could last longer. It suppresses viral replication by a mechanism different from that of existing anti-influenza drugs.

Unlike neuraminidase inhibitors, such as Oseltamivir (Tamiflu, Genentech), which inhibit the action of neuraminidase (an enzyme that frees viruses from the infected cells' surface), Baloxavir Marboxil works by blocking the flu virus's ability to use the host cell for replication by inhibiting activity of the viral polymerase .

## **High-dose Flu Vaccine**

Compared with standard-dose influenza vaccination, high-dose influenza vaccination reduces the number of respiratory related hospital admissions in U.S. nursing home residents, revealed in results from a cluster-randomized trial.

Fluzone HD has four times more antigen than the standard-dose fluzone vaccine, and some trials have shown higher immunogenicity and superior efficacy in preventing influenza among older community-dwelling adults, compared with standard-dose trivalent vaccine. Data from nursing homes remain limited.

## Dissemination of Influenza Surveillance In Bangladesh

To disseminate the findings and update of NIC activities one day seminar entitled “Dissemination of Influenza Surveillance Findings in Bangladesh” was held on 18 April, 2018 at Sasakawa Auditorium of icddr,b. The program was jointly organized by Institute of Epidemiology, Disease Control and Research (IEDCR) & National Influenza Centre (NIC) and Infectious Disease Division of icddr,b.

Professor Dr. Abul Kalam Azad, Director General of Health Services was present as Chief Guest. WHO Representative to Bangladesh Dr. Bardan Jung Rana, Executive Director, icddr,b Dr. John David Clemens, and Country Director, US-CDC Bangladesh Dr. Michael S. Friedman were present as Special Guest.

Professor Dr. Abul Kalam Azad, the Chief Guest emphasized on technological adaptation, to accentuate data monitoring and to upgrade the system. He also discussed about the importance of vaccination.

Professor Dr. Meerjady Sabrina Flora, Director, IEDCR & NIC was the chairperson and keynote speaker of the seminar. The keynote paper “Influenza surveillance and its importance” was focused on global burden of influenza (seasonal and zoonotic influenza), influenza surveillance, different influenza surveillance platforms in Bangladesh and its uses, seasonal influenza vaccines and pandemic preparedness.

Special guest Dr. Michael S. Friedman mentioned about live bird market and emphasized on H7 as China is having cases. Special guest Dr. John David Clemens mentioned influenza activity is one of the best thing in which icddr,b is taking part. Special guest Dr. Bardan Jung Rana gave importance on strengthening the system and to build capacity in his speech.

In working session Influenza surveillance and research findings in Bangladesh were shared through several presentations.



Keynote paper presentation by Professor Dr. Meerjady Sabrina Flora, Director, IEDCR & NIC



Professor Dr. Abul Kalam Azad, Director General of Health Services was addressed as Chief Guest



Co-Chairs and Presenters in working session



Active participation in working session

Technical Support

