World Health Organization

20, AVENUE APPIA – CH-1211 GENEVA 27 – SWITZERLAND – TEL CENTRAL +41 22 791 2111 – FAX CENTRAL +41 22 791 3111 – WWW.WHO.INT

WHO GISRS Bioinformatics Training Workshop

26-27 August 2019
Singapore

SCOPE AND PURPOSE

1. Background:

Timely detection and characterization of circulating influenza viruses to guide prevention and control strategies for influenza epidemics and pandemics is a critical step towards achieving one of the goals of the WHO Thirteenth Global Programme of Work (GPW13): better protection from health emergencies.

The Global Influenza Surveillance and Response System (GISRS) has been the foundation of surveillance, preparedness and response for seasonal and pandemic influenza in the past 67 years. To strengthen GISRS capacity, in particular equipping the global system with emerging technologies e.g. Next Generation Sequencing (NGS), the WHO Global Influenza Programme (GIP), in collaboration with the National Influenza Centre (NIC) Singapore and the Bioinformatics Institute Singapore, plans to organize a 2-day workshop on bioinformatics for NICs of GISRS.

The workshop, right before the Options X for the Control of Influenza in Singapore, is also expected to facilitate GISRS experts, especially those from developing countries to participate in the Options conference, which is one of the most important events in the global influenza community.

2. Scope and Objectives

The Workshop, organized by the WHO Global Influenza Programme (GIP) jointly with the NIC in the National Centre for Infectious Diseases (NCID) Singapore, the Bioinformatics Institute (BII) and the Global Initiative on Sharing All Influenza Data (GISAID), will provide hands-on training on GISAID's publicly accessible EpiFlu™ Database to monitor complex epidemiological relationships among animal and human influenza viruses and the detection and interpretation of evolutionary change using the FluSurver and NEXTFLU.

The overall aim of the workshop is to improve the GISRS virologic surveillance for timely identification of genetic changes in emerging influenza viruses of public health importance, with specific objectives to:

- develop awareness and capability of generating and sharing influenza virus genetic sequence (GSD) and related data;
- improve bioinformatics skills for application in influenza surveillance including NGS;
- strengthen overall surveillance capacity of GISRS using bioinformatics technologies and tools; and
- promote understanding of the spread and evolution of influenza viruses, and their characteristics including antiviral resistance.

3. Expected outcome

By the end of the training workshop, participants are expected to:

- understand the basics of next generation sequencing and GSD analysis;
- perform sequence sharing and submission to public databases (GISAID);
- become familiar with phylogenetic analysis of sequences (including NEXTFLU); and
- identify and interpret influenza virus sequence mutations using (FluSurver).

4. Participants

Laboratory technicians/virologists from NICs, working on influenza virus sequencing and influenza virus GSD management.

The workshop will be conducted in English.

5. Outlines of Agenda

- Basics of next generation sequencing and data analysis
- Sequence sharing and submission to public databases (GISAID)
- Phylogenetic analysis of sequences (including NEXTFLU)
- Identification and interpretation of mutations (FluSurver)
- Visit to Singapore's National Centre for Infectious Diseases (NCID).