

Virologic Surveillance for Influenza

Information Sheet for Healthcare Providers and Laboratories

What is virologic surveillance for influenza?

Virologic surveillance is a collaborative effort between healthcare providers, hospitals, laboratories, public health, and the Centers for Disease Control and Prevention (CDC) to monitor national influenza virus activity. Surveillance activities include:

- Reporting results of respiratory specimen tests to national partners
- Influenza typing, subtyping, genetic and antigenic characterization, and antiviral resistance testing

Public health laboratories support national virologic surveillance by identifying the types, subtypes, and/or lineages of circulating influenza viruses. Specimens submitted to the West Virginia Office of Laboratory Services (OLS) are a source of influenza virus samples that are analyzed to inform national prevention and treatment recommendations. OLS sends a subset of influenza-positive specimens to the CDC for next-generation sequencing to determine the genetic identity of influenza virus samples. Additionally, antigenic characterization is performed on samples representing the genetic diversity in the population. Analysis compares antigenic properties of circulating viruses to similar viruses used in the current influenza vaccines. CDC also analyzes influenza viruses for susceptibility to influenza antivirals.

The results of antigen and molecular testing for viral respiratory pathogens are submitted to the National Respiratory and Enteric Virus Surveillance System (NREVSS) to monitor temporal and geographic trends nationally.

Why is virologic surveillance important?

Influenza viruses undergo constant changes, which makes virologic surveillance essential to identifying new variants and monitoring their impact on available prevention and treatment options. Virologic surveillance efforts provide broad situational awareness for the season by identifying the start of influenza season and which viruses are circulating. Genetic and antigenic characterization assesses the similarity between circulating influenza viruses and the viruses used to produce current influenza vaccines. Specimens forwarded to national partners from public health laboratories serve as an important source for the development of future influenza vaccines.

Virologic surveillance is also used to monitor evolutionary changes in influenza viruses circulating in humans and to rapidly detect human infections with suspected or confirmed novel influenza A viruses. Rapid detection and reporting of novel influenza viruses promote timely public health action to limit the transmission and impact of viruses with pandemic potential.

Office of Epidemiology and Prevention Services

Division of Infectious Disease Epidemiology

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Who can participate in virologic surveillance activities?

Influenza specimens submitted to OLS are obtained from West Virginia Sentinel Providers participating in the Outpatient Influenza-like Illness Surveillance Network (ILINet), clinical laboratories, facilities with respiratory outbreaks, and local health departments or healthcare providers conducting novel influenza surveillance.

If you are interested in participating in virologic surveillance but have not participated before, please contact the West Virginia Influenza Surveillance Coordinator for approval. Healthcare providers not currently participating in ILINet should not submit respiratory specimens to OLS without prior approval.

What are the different ways I can participate?

Eligible health care providers and laboratories may submit up to five specimens a week to OLS during influenza season. Laboratories are also eligible to participate in national virologic surveillance efforts by reporting respiratory test results through NREVSS.

Please refer to the [Influenza and Respiratory Testing Instructions](#) for guidance on specimen collection, storage, and shipping. Additional information on specimen criteria for surveillance testing, receiving free test kits from OLS, and receiving test results can be found in the Influenza Virologic Surveillance Participant's Instructions. Testing for suspected cases of novel influenza infection may be coordinated by contacting the epidemiologist on-call at (304) 558-5358.

What is NREVSS?

Clinical laboratories may participate in surveillance for viral respiratory pathogens by reporting the results of respiratory specimen tests to the National Respiratory and Enteric Virus Surveillance System (NREVSS). NREVSS is a laboratory-based virologic surveillance system that monitors temporal and geographic circulation patterns of respiratory viruses including influenza and respiratory syncytial virus (RSV), among others. NREVSS accepts voluntary reports from participating U.S. laboratories on a weekly basis, including the total number of tests performed and the number of positive tests, in aggregate.

How do I enroll in NREVSS?

If you would like to begin participating in NREVSS, please register directly through the NREVSS ODSS webpage using the following link: nrevss.cdc.gov/register/lab.aspx.

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