Testing for Influenza: What It Can Tell Us

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Welcome to this CDC influenza podcast for health care professionals. In this podcast, Dr. Tony Fiore from CDC's Influenza Division discusses clinical testing for influenza. For additional podcasts about influenza and other topics, go to www.cdc.gov/podcasts.

Testing for influenza is the only way to confirm an influenza diagnosis, since the symptoms of influenza tend to overlap with those of other diseases. However, some clinicians might prefer not to test all patients with typical symptoms of influenza. When influenza activity is high, a clinical diagnosis of influenza will be accurate for many patients with signs and symptoms consistent with influenza. However, some people at higher risk for influenza complications, such as infants, elderly persons, and persons with compromised immune systems or other chronic conditions, might not have typical symptoms. Testing can be quite helpful in establishing a diagnosis for these people.

For individual patients seen in ambulatory care settings, tests are more useful when they are likely to help with diagnostic and treatment decisions, such as the use of influenza antiviral agents. Not every patient with influenza will benefit from treatment with antiviral medication. For example, those with milder illness or patients who seek medical care more than 48 hours after symptom onset are less likely to benefit.

Detection of influenza and prompt implementation of control measures are critical to the control of outbreaks in institutions, such as hospitals and nursing homes. When there is influenza activity in the community, clinicians should consider influenza testing, including viral culture, for patients who develop signs and symptoms of influenza while they are in a health care facility.

Nasopharyngeal and nasal specimens, such as nasal swabs, nasal aspirates, and nasal washes, are better than other upper respiratory samples, such as throat swabs, for diagnostic testing because they collect a higher quantity of detectable virus. For best results, specimens should be collected within the first four days of illness.

Rapid diagnostic tests for influenza can help in the diagnosis and management of patients who present with signs and symptoms compatible with influenza. They are also useful for helping to determine whether outbreaks of respiratory disease, such as in nursing homes and other settings, might be due to influenza. Rapid diagnostic testing can provide results within 10 to 15 minutes. Note, however, that the sensitivity of rapid diagnostic tests can be low, and sensitivities of less than 50 percent have been reported.

The availability and use of commercial influenza rapid diagnostic tests by laboratories and clinics has substantially increased in recent years. Rapid tests differ in some important ways: all can identify influenza A and B viruses, but some cannot distinguish between them.

Some tests are waived from requirements under the Clinical Laboratory Improvement Amendments of 1988, which has important implications for office use. Most tests can be used with a variety of specimen types, but the accuracy of the tests can vary based on the type of specimen collected, for example, a throat swab versus a nasal swab. The rapid tests vary in terms of sensitivity and specificity when compared with viral culture. Product insert information and research publications indicate that median sensitivities are approximately 50 to 75 percent, and median specificities are approximately 90 to 95 percent. However, some recent data indicates that sensitivity can sometimes be lower, especially in adults. Keep this in mind when evaluating a patient with typical symptoms of influenza, particularly when influenza viruses are circulating in your community.

The reliability of rapid diagnostic tests can vary, depending on the conditions in which they are used. Understanding some basic considerations can help prevent you from being fooled by false-positive or false-negative results.

When influenza activity in the community is low, a rapid diagnostic test is less likely to accurately identify influenza in a patient who presents with acute respiratory illness and fever. False positive rapid influenza test results can occur, and are more likely at the beginning and end of the flu season.

However, during periods of high or peak influenza activity, a positive test is likely to be accurate. This is when you should watch out for false-negatives, in other words, the chance that a rapid diagnostic test will produce a negative result for a patient who actually does have influenza.

Collect specimens as early in the illness as possible, ideally within four to five days. Follow manufacturers' instructions, including handling of specimens.

Consider sending specimens for viral culture, DFA, or PCR testing to confirm rapid test results when community prevalence of influenza is low and the rapid diagnostic test result is positive. You should also consider sending samples for further testing when the rapid diagnostic test result is negative, but the disease prevalence is high. Contact your local or state health department for information about influenza activity.

In summary, don't hesitate to use rapid tests, but be sure you remember to interpret them with the clinical picture in mind, and get to know the level of influenza virus activity in your community.

For more information on influenza, visit www.cdc.gov/flu.

For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO, 24/7.