

2007-2008 Influenza Season Kick-Off

October 31, 2007

The Southern Nevada Health District, Office of Epidemiology, has begun surveillance for the 2007-2008 influenza season, and will be distributing newsletters throughout the upcoming months. The newsletters will contain important information on influenza and trends seen in Clark County, as well as the nation. For now, the newsletters will be sent out sporadically; as the flu season progresses the newsletters will come on a weekly basis. If you have any questions on influenza or influenza surveillance, please contact Brooke Doman, Influenza Surveillance Coordinator, at (702) 759-1300 or by email at doman@snhdmail.org.

Role of Laboratory Diagnosis

Accurate clinical diagnosis of influenza is limited because symptomology is similar to other respiratory illnesses such as Adenovirus, Respiratory Syncytial Virus, Rhinovirus, Parainfluenza viruses, *Mycoplasma pneumoniae*, and *Legionella* spp. Influenza surveillance information and diagnostic testing can be used to support clinical diagnosis and treatment. Laboratory surveillance assists in establishing the presence of influenza in a community and the predominant circulating strain.

At this point in the influenza season, all patients that are suspected of having influenza should be tested using rapid antigen tests. All positive rapid tests should be confirmed by either viral culture (as described later in the text) or Polymerase Chain Reaction (PCR). PCR testing is available at some clinical laboratories both nationally and in Las Vegas. The Southern Nevada Public Health Laboratory (SNPHL) has the capability to perform Influenza PCR testing in support of epidemiological surveillance or outbreak investigation.

Rapid Antigen Testing

Rapid antigen tests are used to screen for influenza infections and can provide results within 30 minutes. However, rapid antigen tests differ in the results that they can provide and the specimens they utilize. Some rapid antigen tests can only detect influenza A strains, while others can detect influenza A and B strains without distinction, and some can detect and provide distinction between influenza A and B. Rapid antigen tests do not provide Influenza A subtyping. To ensure optimal performance of a rapid antigen test, the appropriate specimen needs to be collected. Inappropriate or insufficient specimens can produce false negative results. However, if more than one specimen type can be utilized for a rapid test, nasopharyngeal and nasal specimens are preferred over other

upper respiratory specimens such as throat swabs, as they generally contain higher quantities of viruses.

When using rapid antigen tests it is important to correlate sensitivity and specificity to currently circulating levels of virus. Most rapid tests have a sensitivity of approximately >70% and specificity of approximately >90%. Hence, when influenza is not present in the community, false positive results are more likely to occur. During peak influenza season, false negatives are more likely to occur.

Viral Cultures

Viral cultures are used to confirm positive rapid antigen results and can detect both Influenza A and B. Specimens should be collected within the first four days of illness, and results are ready 3-10 days after collection.

Viral cultures provide important information on Influenza A subtypes circulating in the community. This information is critical to compare circulating strains to the current vaccine, to develop new vaccine, to look for potential pandemic influenza, formulate influenza treatment, and to monitor for antiviral resistance.

Recently, the SNHD Office of Epidemiology (OOE) has received influenza reports based on positive serological antibody testing results. According to the Centers for Disease Control and Prevention, serological testing results for human influenza on a single serum antibody test is not interpretable and is not recommended. Medical practitioners planning to utilize serological testing as a method for influenza confirmation should note that the only acceptable method through serology is demonstration of a four-fold rise in influenza IgG by serologic assay on paired sera with one sample collected within the first week of illness and the second sample collected 2-4 weeks later (1).

(1) Centers for Disease Control Prevention. Influenza Symptoms and Laboratory Diagnostic Procedures.
<http://www.cdc.gov/flu/professional/diagnosis/labprocedures.htm>