

RESPIRATORY VIRAL DIAGNOSTIC TESTS; USING THEM EFFECTIVELY

WHEN TO TEST: Most upper and lower respiratory tract infections are caused by viruses, the highest incidence occurring in children. Viral diagnostic tests can be cost effective when used appropriately to diagnose patients such as in:

- Hospitalized patients
- Controlling local, widespread or institutional outbreaks (i.e. schools, long term care facilities)
- Knowledge of viral etiology stops additional work up and unnecessary antibiotic therapy
- When specific viruses have effective therapeutic agents, such as Influenza
- Unusual clinical manifestations of viral infection such as myositis or pneumonia

If Avian influenza or SARS is suspected notify the laboratory prior to collection and transport of specimens from these patients because of biosafety issues (See Avian Flu Micro Clinical Brief at www.thepathologycenter.org) we will send these specimens directly to the Nebraska Public Health Laboratory.

HOW TO TEST: Appropriate selection among the tests available for the accurate diagnosis of influenza and other respiratory viruses requires knowledge of:

- Prevalence in the community
- Age of patient
- Correct specimen collection/transport
- Sensitivity/specificity of type of test selected

DETERMINING PREVALENCE: The Centers for Disease Control (CDC) in collaboration with state and local health departments provides data on **prevalence** through the U.S. Influenza Sentinel Providers Surveillance Network. Data is collected weekly on laboratory confirmed cases of Influenza (culture or PCR positive) as well as clinical cases of Influenza-like illness (ILI). It is grouped into five categories describing geographic spread of disease:

1. **No activity:** No lab confirmed cases, no increase in ILI cases.
2. **Sporadic:** Small numbers of lab confirmed cases, no increase in ILI cases
3. **Local:** Recent lab confirmed cases and increase in ILI in single a region of the state.
4. **Regional:** Recent lab confirmed cases and increase in cases of ILI in 2 regions of the state
5. **Widespread:** Recent lab confirmed cases and increase in cases of ILI in > or = to half of the state.

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When the spread of Influenza is considered **local** (Omaha), **regional** (including Omaha) or **widespread** (Nebraska), it is considered to be PEAK season (high prevalence). Once present, disease will typically remain in the community for 6 to 8 weeks.

The Douglas County Health Department (DCHD) issues an **excellent** weekly bulletin to health care providers notifying them of the estimated level of spread (prevalence) of disease and providing links to pertinent websites for additional information (See www.thepathologycenter.org or call DCHD at 402-444-7214 and request the Douglas Co. 2008-2009 Influenza Surveillance Update for Health Care Providers from Dr. Anne O’Keefe if you would like to receive this bulletin)

The laboratory performs viral testing daily and issues a “**Weekly Incidence of Viral Isolates**” report (see www.thepathologycenter.org or call 402-955-5513 to receive the report via weekly fax or e-mail at your office). The report includes the number of tests performed and the types of viruses circulating in the community. The Influenza activity in the community is also posted on this report.

CAUTION: When there is no activity or sporadic cases of influenza in the community influenza the rapid antigen (EIA) test positive results cannot be trusted and must be confirmed by a more specific rapid test such as DFA, culture or PCR. When influenza is at its PEAK in the community, rapid antigen (EIA) tests can give false negative results and ought to be confirmed with DFA/culture or PCR in those patients where accurate diagnosis is necessary such as hospitalized or institutionalized patients.

Therefore to provide more accurate rapid antigen (EIA) test results, the laboratory will:

- Perform rapid antigen (EIA) tests for Influenza and RSV only from November 1ST to May 1st.
- When Influenza is not in the community, positive results will be reported as indeterminate and confirmed by DFA or culture.
- When PEAK season is reached in the community, the rapid antigen test when positive will be reported as positive. When negative they will be reported with a comment; Due to the variable sensitivity of EIA (kit) rapid influenza testing, the manufacturer/FDA recommends that negative results be confirmed by viral culture. (RVP)
- All negative rapid tests will be reflexed to viral culture for hospitalized patients

Please see Lab Alert Poster; “Respiratory Viral Testing in PEAK Influenza Season for Testing Strategies” at www.thepathologycenter.org

Collection and transport of specimens for viral testing is the single most important factor in test accuracy. The preferred specimen is a nasopharyngeal aspirate/washing. Nasopharyngeal swabs can be used but may be less sensitive. If nasopharyngeal swabs are used, use two, one for each nares. They may be submitted together in the same transport vial. The metal handle can be cut off with ordinary scissors. See www.thepathologycenter.org for collection instruction video.

DON’T USE: Throat (or pharyngeal) swabs or nose swabs, wood and cotton are toxic to viruses and should not be used. Sputum contains inhibitors and should not be used. Immediately place specimen in M5 viral transport medium (pink conical tube), refrigerate and keep refrigerated during storage/transport.