



Marshfield Labs™

A division of Marshfield Clinic

L a b o r a t o r y *News*

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2009 Influenza Testing Update

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During the upcoming influenza season we plan to publish a series of newsletters to provide information regarding significant changes to laboratory test offerings and recommendations for the appropriate utilization of available tests.

This newsletter will discuss:

- Introduction of new Influenza/RSV test offerings available Oct. 1, 2009
- Recommendations for Influenza testing
- Interpretation of the new Influenza/RSV tests
- Discontinuation of Rapid Antigen Influenza tests
- Continued Availability of Rapid RSV Antigen and test recommendations
- Fee-exempt Influenza Testing at the Wisconsin State Lab of Hygiene
- Influenza A Subtyping test offerings

Influenza A/B and Respiratory Syncytial Virus Nucleic Acid Tests

Beginning Oct. 1, 2009, Marshfield Labs will introduce the new Prodesse ProFlu+™ influenza A and B nucleic acid test (PCR) [Test Code: ABNAT] that replaces the current FLUPCR (RUO) test. The new clinical PCR test is an FDA-approved diagnostic assay with validated in-house modifications and will eliminate the requirement for Advanced Beneficiary Notices (ABN's) and Prior Authorization waivers.

At the same time, we are also introducing a new respiratory syncytial virus (RSV) nucleic acid test (PCR) [Test Code: RSVNAT] that can be ordered individually or in combination with the influenza A and B test [Test Code: ABRNAT].

Brief Background:

Influenza is an acute respiratory illness most commonly caused by seasonal forms of Influenza virus types A and B that circulate annually. There are two predominant seasonal subtypes of Influenza A, specifically A(H1) and A(H3). Influenza B is not subtyped.

continued on page 2

For questions and additional information, please contact:

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AVAILABLE TESTS:

Influenza A and B Nucleic Acid Test

Test code: ABNAT
 Test Description:
 Influenza A&B NAT(PCR)
 CPT Codes: 87798 x2
 Fee: \$140.00

Respiratory Syncytial Virus (RSV) Nucleic Acid Test

Test code: RSVNAT
 Test Description:
 RSV NAT(PCR)
 CPT Code: 87798
 Fee: \$75.00

Influenza A and B with Respiratory Syncytial Virus (RSV) Nucleic Acid Test

Test code: ABRNAT
 Test Description:
 Influenza A&B w/RSV NAT(PCR)
 CPT Codes: 87798 x3
 Fee: \$185.00

Common to the tests above:

Specimen:

Collect 1 nasopharyngeal swab in M4RT transport media, refrigerate on transport
 Rejection: specimens other than M4RT

Storage:

Refrigerate up to 3 days

Available:

Performed Monday through Saturday
 Analytic time: 24 hrs from time of receipt at Marshfield Labs

Method:

Real-Time RT-PCR
 Qualitative Results:
 Reported as Negative, Positive or Indeterminate for Influenza A, B and/ or RSV

Positive result for influenza A does not differentiate seasonal influenza from 2009 A/H1N1.

Indeterminate results due to inhibition are inconclusive.
 Repeat test if clinically indicated.

A new influenza A virus (commonly known as “swine flu”) was first detected in individuals in Mexico and the United States in April of 2009. In June of 2009 the World Health Organization declared a pandemic was underway. The Centers for Disease Control (CDC) has more recently renamed the novel pandemic strain “2009 influenza A/H1N1”. This virus is highly contagious, spreading from person-to-person in much the same way that regular seasonal influenza viruses spread. The 2009 A/H1N1 viruses as well as seasonal influenza viruses have the potential to cause significant illness with associated hospitalizations and deaths.

Respiratory syncytial virus (RSV) is the most frequent cause of lower respiratory tract infections in infants and children. There are two types of RSV (A and B) based on antigenic and surface protein variations. Most yearly epidemics contain a mix of type A and B viruses, but one subgroup can dominate during a season. While RSV can cause severe respiratory illness among all ages it is more prevalent in pediatric, elderly and immunocompromised populations. RSV can infect up to 80% of children less than 1 year of age. RSV is also an important cause of severe respiratory disease and death in the elderly.

Test Detail:

The *ProFlu+*TM Assay is a multiplex Real-Time Reverse Transcriptase (RT)-PCR in vitro diagnostic test intended for use to aid in the differential diagnosis of Influenza A, Influenza B and RSV viral infections in humans. Ordering details can be found in the sidebar. The acceptable specimen type will be one nasopharyngeal (NP) swab (sterile polyester tipped with flexible wire shaft) in M4RT multi-microbe transport media. Samples submitted in media other than M4RT will be rejected. Transport the sample at refrigerated temperature. The sample is stable for 72 hours refrigerated. Testing will initially be performed Monday through Saturday. Analytic time: 24 hours from time of receipt at Marshfield Labs

Recommendations for Influenza Testing

Influenza Testing is Recommended For:

- Persons with severe febrile illness
- Persons with sepsis syndrome
- Patients hospitalized with severe respiratory illness
- Healthcare workers with symptoms of influenza-like illness (fever $\geq 100^{\circ}$ F and cough or sore throat)
- Residents of residential facilities (long term care, prisons) who have symptoms

Testing May be Considered For:

- Moderately ill persons (fever $\geq 101.5^{\circ}$ F **AND** cough or sore throat **AND** headache or body aches)

Testing Not Recommended For:

- Persons with mild illness
- Family members of a person with known 2009 influenza A/H1N1 infection

Interpretation of Influenza A and B Nucleic Acid Test Results

	<i>Influenza A</i>	<i>Influenza B</i>	<i>Interpretation</i>
ABNAT Influenza A and B Nucleic Acid Test (PCR) results	Negative	Negative	Negative for seasonal influenza A Negative for 2009 influenza A/H1N1 (swine) Negative for seasonal influenza B
	Negative	Positive	Negative for seasonal influenza A Negative for 2009 influenza A/H1N1 (swine) Positive for seasonal influenza B
	Positive	Negative	Positive for influenza A – <i>This positive influenza A result does not differentiate between seasonal and 2009 A/H1N1 (swine) influenza.*</i> Negative for seasonal influenza B
* If subtyping is warranted, please contact the laboratory for availability. Indeterminate results due to PCR inhibition are inconclusive; consider repeat testing if clinically indicated.			

Interpretation of RSV Nucleic Acid Test Results

The *ProFlu+*™ Assay will detect both RSV A and B but will not differentiate between the two, thus a positive RSV result indicates infection with either RSV A or RSV B. Indeterminate results due to inhibition are inconclusive; we recommend repeat testing if clinically indicated.

Rapid Influenza Antigen Test has been Discontinued

Rapid Influenza Antigen testing will no longer be available. Compared to a nucleic acid test such as RT-PCR which is becoming recognized as the “gold” standard, the performance of the rapid antigen methods is less than satisfactory. Internal and external Morbidity and Mortality Weekly Report (MMWR) data suggest that the flu antigen tests may miss up to 7 of 10 individuals with confirmed influenza of both seasonal and pandemic types. This is consistent with the Wisconsin Division of Public Health recommendation to not use a rapid test for the diagnosis of the pandemic strain of influenza A.

Rapid Respiratory Syncytial Virus (RSV) Antigen Test Remains Available

While availability of the Rapid RSV Antigen Test (RS-AG) remains unchanged, we also recommend use of the new RSV nucleic acid test (RSVNAT) as an alternative due to improved test performance characteristics. We also recommend use of the RSVNAT in place of the direct fluorescent antigen test (DFA) or viral culture for the confirmation of Rapid RSV test-negative results when clinically indicated.

Fee-Exempt Influenza Testing at WSLH - Surveillance Only

The Wisconsin State Lab of Hygiene (WSLH) will be offering fee-exempt testing for the purposes of influenza surveillance. This option should not be considered for clinical management of patients. The anticipated turn around time is likely to be 4-5 days.

Providers may request influenza H1N1 surveillance testing at no charge at WSLH if the patient has acute febrile illness and meets the testing criteria. Testing information including the revised fee-exempt form that **MUST** accompany the specimen can be found at the WSLH web site:

<http://www.slh.wisc.edu/comdis/swineflu.dot>

REFERENCES:

1. Centers for Disease Control and Prevention. 2009. www.cdc.gov/flu.
2. Iwane, M.K., Edwards, K.M., Szilagyi, P.G., et.al; New Vaccine Surveillance Network. 2004. Population-Based Surveillance for Hospitalizations Associated with Respiratory Syncytial Virus, Influenza Virus, and Parainfluenza Viruses Among Young Children. *Pediatrics*. 113(6):1758-1764.
3. Legoff, J., Kara, R., Moulin, F., et.al; Evaluation of the one-step multiplex real-time reverse transcription-PCR ProFlu-1 assay for detection of influenza A and influenza B viruses and respiratory syncytial viruses in children. 2008. *JCM*, Feb;46(2):789-91.
4. Liao, R., Tomalty, L., Majury, A. and D. Zoutman; Comparison of viral isolation and multiplex real-time reverse transcription-PCR for confirmation of respiratory syncytial virus and influenza virus detection by antigen immunoassays. 2009. *JCM*, Mar;47(3): 527-32.
5. Evaluation of Rapid Influenza Diagnostic Tests for Detection of Novel Influenza A (H1N1) Virus – United States, 2009 *MMWR* August 7, 2009 / 58(30);826-829
6. Pandemic Information for Wisconsin- 2009 H1N1 Situation in Wisconsin. <http://pandemic.wisconsin.gov/category.asp?linkcatid=3191&linkid=1567&locid=106>

Marshfield Labs will not forward any testing for Outreach Providers for this surveillance test

Influenza A Subtyping Test Offerings

We expect to introduce a clinical Influenza A subtyping assay in October 2009, however at this time subtyping is not available at Marshfield Labs. Updates on the availability of subtyping will be found in future editions of “Laboratory News” and on the Clinic website. Seasonal human influenza such as A (H1), A (H3) or B has not been detected in our testing areas since the end of May, 2009. Novel 2009 influenza A/H1N1 is currently the prevalent influenza circulating in the community. Consequently, there is limited clinical value in performing subtype analysis on influenza A positive patients at this time.

WSLH publishes weekly surveillance reports during periods of active influenza transmission that provide the most up-to-date information regarding circulating Influenza strains and antiviral susceptibilities. These reports are available at: <http://pandemic.wisconsin.gov/category.asp?linkcatid=3191&linkid=1567&locid=106>

If Influenza A subtyping is necessary, please contact the laboratory for more information. 