



LABORATORY ALLIANCE of Central New York, LLC

New Multiplex PCR Assays for the Improved Laboratory Diagnosis of RSV and Influenza Infection

Effective December 5, 2011, the Microbiology department of Laboratory Alliance of Central New York will be offering two new multiplex PCR assay for the rapid and more reliable detection of RSV, seasonal influenza A, H1N1 influenza A, and influenza B directly from nasopharyngeal swab specimens. This new multiplex PCR assays can be performed seven days per week by our microbiology laboratory at our Operations Center in Liverpool, NY and will be replacing our previously used molecular method.

Clinical Significance

Respiratory Syncytial Virus (RSV) and influenza viruses are major causes of human respiratory infections, particularly during the late fall through early spring months. RSV infection, which presents primarily as a bronchiolitis and/or viral pneumonia, is the leading cause of lower respiratory infection in infants and young children. Peak incidence of severe RSV disease is observed at age 2 to 8 months. Overall, 4 to 5 million children younger than 4 years acquire an RSV infection, and more than 125, 000 children are hospitalized annually in the United States because of this infection. This translates to 3 to 9 infections per 1,000 children younger than 1 year who are hospitalized annually for this condition (1).

Virtually all children have had at least one RSV infection by the age of three years. Adults may also get symptomatic RSV infection but the disease is usually less severe due to protective humoral immunity acquired from past childhood infections. However, as one ages, this immunity wanes and the elderly, particularly those in nursing homes and extended-care facilities, are at increased risk for more serious pulmonary infection (2).

Influenza, otherwise known as the "flu," is an acute, contagious respiratory illness caused by influenza A, B, and C viruses. Of these, only influenza A and B are thought to cause significant disease in humans, with influenza B infections usually being milder than infections caused by influenza A. Common symptoms of influenza infection include fever, chills, sore throat, muscle pains, severe headache, weakness/fatigue, and a nonproductive cough (3).

In an effort to more reliably screen for viruses in those patient age groups at highest risk for certain respiratory infections, all nasopharyngeal specimens collected from patients regardless of age will be routinely tested for the presence of seasonal influenza A, H1N1 influenza A, and influenza B using a rapid multiplex PCR assay. This assay will be performed seven days per week on 1st and 2nd shift. Infants, children, and the elderly will also be tested for the presence of these same viruses as well as RSV using a different molecular-based, multiplex assay. This assay will be performed seven day per week on first shift.

By offering these two different multiplex PCR assays, the most reliable molecular methods are being used for the rapid diagnosis of the most serious respiratory viral infections based upon age group.

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1. For adults age 19 – 64:

Test: FLUA/B 09H1N1 BY PCR

Test Code: FLUGX

2. For children age 0 – 18, adults age 65 and older, and long-term care patients

Test: FLUA/B, RSV BY PCR

Test Code: RESPCR

Method: PCR

Specimen Requirements: Nasopharyngeal swab (NP) in Universal Transport Media (UTM)

Unacceptable Specimens: Any other swab other than Dacron or flocked swabs and any other transport media other than UTM or M4.

Storage and Transport: Transport human respiratory specimens refrigerated at 2– 8°C. Store specimens refrigerated at 2 – 8°C for up to 72 hours.

Schedule of Testing: FLUGX: Daily on 1st and 2nd shift
RESPCR: Daily on 1st shift

CPT4 Code: FLUGX = 87502, 87503
RESPCR = 87502, 87503 x3, 87798 x 2

Billing Codes: FLUGX = 3010377
RESPCR = 3010362

References:

1. Hall, C.B. et al. 2009. The burden of respiratory syncytial virus infection in young children. N. Engl. J. Med. 360: 588-598.
2. Falsey, A.R. et al. 1995. Respiratory syncytial virus and influenza A infections in the hospitalized elderly. The J. Infect. Dis. 172: 389-394.
3. http://en.wikipedia.org/wiki/Swine_influenza.