NEW! MOLECULAR VIRAL RESPIRATORY PANEL

Staring this respiratory season the microbiology laboratory at CHDA will start using an enhanced molecular viral respiratory panel (***Seeplex® RV15 OneStep ACE Detection)*** for respiratory virus testing.

WHY THE CHANGE?

Patients with respiratory viruses can present with a spectrum of symptoms. One basic method of characterization is presentations consistent with the "common cold" and those that present with Influenza like illness or severe respiratory disease (Figure 1). Although many viruses like Influenza A and B have distinct seasons, respiratory viruses do circulate year round. This assay is more sensitive that traditional tissue culture and can identify more pathogens than our previous method.

Figure 1:

Symptom	Flu	Cold
Fever	Usually present, high (102°F to 104°F or 38°C to 41°C); lasts 3 to 4 days	Uncommon
Headache	Very common	Uncommon
Aches and pains	Common and often severe	Slight
Fatigue and weakness	Can last up to 14 to 21 days	Mild
Extreme exhaustion	Very common at the start	Never
Stuffy nose	Sometimes	Common
Sneezing	Sometimes	Common
Sore throat	Sometimes	Common
Chest discomfort, cough	Common	Mild to moderate, hacking cough

Influenza Like Illness (ILI) and Severe Respiratory Disease

Influenza like Illness is more severe than the limited the URTI (upper respiratory tract infection) symptoms produced by viruses that cause the common cold. Although Influenza A and B cause a significant proportion of ILI, other respiratory viruses such as RSV, PIV3, AdV, and MPV and occasionally rhinoviruses can also cause serious respiratory disease, particularly in young children, the elderly, and immunocompromised individuals.

RSV (respiratory syncytial virus); PIV3 (parainfluenza 3); AdV (adenovirus); MPV (metapneumovirus)

HOW IS THIS TEST DIFFERENT?

For many years the microbiology laboratory has tested for influenza A and B, RSV, parainfluenza 1,2,3 and adenovirus using isolation in tissue culture. This new assay uses nucleic acid amplification to detect the genetic signature of the virus in the patient's sample and does not require the viruses to be viable thereby enhancing the sensitivity of the test.

In addition, this assay can detect 15 different pathogens at once including viruses that are difficult to culture:

1. Influenza A virus
2. Influenza B virus
3. Human respiratory syncytial virus A
4. Human respiratory syncytial virus B
5. Human parainfluenza virus 1
6. Human parainfluenza virus 2
7. Human parainfluenza virus 3
8. Human parainfluenza virus 4
9. Human adenovirus
10. Human rhinovirus A/B/C
11. Human coronavirus OC43
12. Human coronavirus 229E/NL63
13. Human enterovirus
14. Human metapneumovirus
15. Human bocavirus 1/2/3/4

Although many will be familiar with corona, rhinoviruses and enteroviruses which are common causes of the common cold, this assay will also identify newly identified pathogens, human metapneumovirus and bocavirus.

WHAT PATIENTS SHOULD HAVE THIS TEST ORDERED?

There are two primary purposes of this new test:

1. Better define the epidemiology of respiratory illness through a sentinel surveillance system established by public health in select emergency rooms throughout the province.

2. To provide enhanced clinical information for individuals who present with significant respiratory disease that requires addition to hospital and investigation of outbreaks in long term care (LTC) and other closed facilities.

This testing will not be available for patients in the community because virus specific interventions are generally not possible or indicated and we expect the sentinel program to provide an insight into the causes of ILI in the community.

WHAT DOES A POSITIVE TEST MEAN?

A positive test must be interpreted in the clinical context of the patients. Treatment options are available for influenza infection and if started within 48 hours of infection can modestly reduce symptoms. However, there is data to suggest that treatment beyond the 48 hour window is still beneficial in reducing complications and mortality in hospitalized patients. Although there are no specific treatments available for the other viruses in this panel, data suggests that providing a viral etiology to the patients' presentation can reduce antimicrobial and supplemental laboratory test utilization. We will be evaluating whether the implementation of this enhanced testing improves patient care.

WHAT ARE THESE NEW VIRUSES?

Metapneumovirus (MPV): Human metapneumovirus was first identified in 2001 in samples from children with respiratory tract diseases. MPV is a respiratory viral pathogen that causes a spectrum of illnesses, ranging from asymptomatic infection to severe bronchiolitis. The true prevalence of MPV disease is also not yet known. Most studies to date have concentrated on hospitalized children. In such cases, MPV can be expected to be present in 10-20% of nasopharyngeal specimens, depending on the locale and season. Co-infections with other respiratory tract viruses, such as RSV and influenza virus, in infants have been suggested to be a factor that influences the severity of bronchiolitis. There is no treatment for MPV.

Bocavirus (HBoV): HBoV is a recently described virus associated with a broad spectrum of both upper and lower respiratory tract diseases, especially in infants and young children. It is more frequently related to lower respiratory diseases, one third of which is pneumonia. HBoV infection is worldwide distribution, and a seasonal distribution with a peak in winter and spring is suspected. There is no treatment for HBoV.

QUESTIONS?

If you have any questions regarding the interpretation of this test please call contact:
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