

Respiratory virus testing update

Fairview laboratories offer respiratory viral culture, as well as rapid antigen testing, for influenza A and B and respiratory syncytial virus (RSV).

With the arrival of the respiratory virus season, clinicians will see an increasing number of patients presenting with influenza and other respiratory viruses. Fairview laboratories offer the following guidelines for testing.

Collecting specimens

Because the sensitivity of rapid antigen testing is approximately 60 percent of that of a respiratory viral culture, the laboratory recommends physicians always order the viral culture in addition to the rapid test.

Test sensitivity depends on proper specimen collection and handling. Recommended specimens are nasal wash, nasal aspirate or a nasopharyngeal (NP) swab, with nasal washes or aspirates preferred. Although the laboratory can perform respiratory virus testing on bronchial specimens, the rapid influenza and RSV results may demonstrate poor sensitivity and specificity.

Clinicians should send the specimens to the laboratory as soon as possible. If there is a delay in submitting, store the samples at 2-8 degrees Centigrade.

Culturing respiratory viruses

The respiratory viral culture includes a cell culture and a shell vial culture. The shell vial culture is stained at 48-72 hours and reported as positive or negative. If positive, the virus present will be identified under the viral culture result. The shell viral culture will identify seven respiratory viruses: RSV, influenza A and B, and adenovirus and parainfluenza types 1, 2 and 3.

Laboratories will hold the cell culture for 21 days, looking for other viruses such as cytomegalovirus or Herpes

simplex virus. An additional charge will be added if viruses are identified.

Testing locations, schedules and procedures

Rapid influenza and RSV antigen testing are available at all Fairview hospital sites and clinics. At the University campus, the respiratory viral culture is automatically added to a specimen sent for antigen testing. However, at all other

sites, physicians need to order the respiratory virus culture separately.

All rapid antigen testing is performed on a STAT basis. All positive results are called to the ordering sites.

For more information, contact the virology laboratory, 612-273-5195.

*By **Connie Weston, M.S., M.T., A.S.C.P.**, technical supervisor, Virology Laboratory, University of Minnesota Medical Center, Fairview.*

TESTING HOURS

Hospital Acute Care Laboratories are open 24 hours a day.

Virology Laboratory 612-273-5195

University of Minnesota Medical Center, Fairview

Mon.-Fri., 7 a.m. - 11 p.m.

Sat. and Sun. (Sept.-May only), 8 a.m. - 4:30 p.m.

RESPIRATORY VIRUS TESTING	Test Includes	Specimen Types	Comments
Respiratory viral culture—includes cell culture and shell viral culture	Shell viral culture for isolation of: Adenovirus Influenza A and B Parainfluenza, Types 1, 2, 3 Respiratory syncytial virus Cell culture for isolation of: Adenovirus Cytomegalovirus Enterovirus Herpes simplex virus Rubeola virus Mumps Varicella zoster virus	Preferred: nasal wash or nasal aspirate Accepted: nasopharyngeal specimen (please collect two swabs) Accepted but not recommended: Bronchial wash, sputum, throat	Sensitivity for rapid antigens is 60 percent of that of a respiratory viral culture; therefore viral culture should always be ordered with rapid antigens.
Influenza A/B rapid antigen	Detection of viral antigen by EIA		
Respiratory syncytial virus rapid antigen	Detection of viral antigen by EIA		

Clinics move to point of care A1c testing

Most clinics in the Fairview system, as well as select University of Minnesota Physicians clinics, are adopting the Siemens DCA 2000 for point-of-care hemoglobin A1c testing in 1Q 2008. The new point of care testing will enable providers to better help patients manage their diabetes. Advantages include:

- Six-minute turn-around time. This will eliminate the

- need to transport specimens from clinics to the hospital laboratory.
- The provider can receive the results while the patient is still in the clinic.
 - Smaller sample needed. Sufficient blood can be obtained via a fingerstick instead of a venipuncture, if no other work is ordered.
 - Increased satisfaction for patients and providers.

A1c correlation and specimen requirements

The DCA 2000 bench-top instrument uses a monoclonal antibody agglutination reaction to quantitatively measure hemoglobin A1c. The instrument's results correlate well with the reference method that uses automated high performance liquid chromatography (used in the Collaborative Studies Clinical Laboratory, University of

Minnesota Medical Center, Fairview), with an R squared of 0.993.

The method performs testing on 1 uL of whole blood. Acceptable specimens include direct fingerstick collection or whole blood specimens collected with EDTA or heparin anticoagulant.

Edrie Murphy, M.B.A., C.L.S., laboratory director, Fairview clinics

Earlier identification of patients with or at risk of AMI

Enhanced sensitivity of new Troponin I ES assay helps improve patient care.

In December 2007, Fairview Clinical Laboratories introduced a new Troponin I ES (enhanced sensitivity) assay with much improved low-end precision and reduced interferences from endogenous substances sometimes found in patient samples. With these improvements, the new assay now meets the analytical goal set by the Joint European Society of Cardiology/American College of Cardiology of less than 10 percent coefficient of variation (CV) at the 99th percentile of the upper limit of

- the normal reference range.
- **Improved analytical specificity and low end precision**
The new assay is better able to identify patients with minor increases in Troponin I. The AMI cut-point of 0.120 ug/L now has a clinical diagnostic sensitivity of ~95 percent and a clinical diagnostic specificity of ~93 percent.
 - **Risk stratification**
The new Troponin I ES assay can aid in the risk stratification (values greater than 0.034 ug/L to 0.120 ug/L) of patients

with myocardial ischemia symptoms suggestive of acute coronary syndrome (ACS). The more the Troponin I ES value rises above 0.034 ug/L, the higher the clinical diagnostic specificity for AMI.

- **Calibration**
The basic calibration of the Troponin I ES assay has not changed. Therefore, the old

Troponin I and new Troponin I ES values for samples above approximately 0.5 ug/L are very similar.

Daniel Berntson, M.D., Fairview Southdale Hospital;
John Eckfeldt, M.D., Ph.D., and **Priscilla Bormann, C.L.S.**, University of Minnesota Medical Center, Fairview

Specification	Troponin I ES (New Assay)	Troponin I (Former Assay)
Upper Reference Limit (10% CV and 99th percentile)	0.034 ug/L	0.08 ug/L
AMI Cut-Off	0.120 ug/L	0.40 ug/L
Risk Stratification	Yes	No

