



Hagerstown Medical Laboratory

Date: January 5, 2012
To: Medical Staff, Laboratory, and Key Personnel
From: John G. Newby, M.D. Director of Laboratories
Subject: Update on Influenza Testing

A handwritten signature in blue ink, appearing to read "John G. Newby".

The Laboratory has received several inquiries concerning nucleic acid testing for Influenza by real time PCR and how it compares to the previously employed rapid enzyme immunoassay (EIA).

In the past the Laboratory offered a rapid enzyme immunoassay for detection of Influenza A and Influenza B infections. While positive results had an extremely high predictive value, the opposite was not true necessitating back up viral culture for common respiratory viral pathogens. In these cases, 68% of EIA negative samples were positive for one of the respiratory viruses tested. The vast majority of these (95%) were Influenza A or B with only 5% of culture positive samples containing one of the other common respiratory viral pathogens

While rapid enzyme immunoassay testing can take only 30 minutes, data from our laboratory found the sensitivity and specificity for these rapid tests to be below 70%.

Culture for respiratory viruses can detect eight different viruses, however, culture requires viable virus while the molecular method requires only that viral nucleic acid be present. Culture also may take up to 10 days before being finalized as negative. Specificity and sensitivity are above 97% and virus culture cannot differentiate between Influenza A and Influenza A H1N1 (2009) strains.

The analysis time for the molecular assay currently being used in our laboratory can take up to 75 minutes for a negative specimen or a specimen with low viral loads. Despite limitations, this testing has sensitivity and specificity up to 99%

False positive tests may result from recent intranasal administration of vaccine because viral RNA is present in the nasal mucosa. False negatives may result if the specimen is improperly collected or stored prior to analysis.

Despite minor shortcomings, the molecular methods chosen to diagnose Influenza infection have been shown to be far superior to the methods used in the past. We feel that the increased sensitivity and specificity outweigh the shorter analysis times seen with the rapid EIA methods.

Please feel free to contact me at (301) 665- 4900 or Chanhpheng Phengvath, Microbiology Technical Specialist at (301) 665- 4936 with any microbiology questions or comments.