Saint Luke's Regional Laboratories
Clinical Laboratory Letter

August 2009

Novel H1N1 Influenza A (Swine Flu) Test Update

The CDC recently updated testing recommend-dations for novel H1N1 influenza A (MMWR 58(30);826-829, 8/7/09 and www.cdc.gov/h1n1flu/guidance/rapid_testing.htm). During the months of April & May 2009, the CDC evaluated performance of several commercially available rapid influenza tests for detection of novel H1N1 flu, compared to PCR. Rapid tests were found to have variable sensitivity (40-70%) for this strain, with optimal performance when testing occurred in the first 3 days of illness. Rapid tests were more sensitive for seasonal influenza A than for novel H1N1 strain. The CDC concludes that a positive rapid influenza result can be useful in making treatment decisions, however, a negative result does not rule out infection. Rapid influenza testing is available through all Saint Luke's Regional Laboratories and can be performed on nasopharyngeal swabs or aspirates.

Although the state public health laboratories performed testing during the initial outbreak, the **Missouri State Public Health Laboratory no longer provides testing for novel H1N1 influenza for individual cases. The Kansas Department of Health & Environment Laboratory (KDHE) only accepts specimens from hospitalized patients**. KDHE provides excellent weekly flu surveillance reports on their website (www.kdheks.gov).

The CDC recommends that when definitive determination of influenza infection is necessary, PCR testing should be performed. PCR testing for novel influenza A H1N1 is available through Saint Luke's Regional Laboratories as a send out test to a commercial laboratory, with two testing options available. One option includes a screening PCR test for influenza A & B, followed by reflex testing for H1N1 when the screening PCR is positive for influenza A. There is an additional charge when the reflex testing is performed. The second option is PCR testing for influenza A only with H1N1 reported specifically when present. Acceptable specimens for PCR testing are nasopharyngeal swabs or aspirates. Turnaround time for influenza PCR testing is 48-72 hours.

It is no longer necessary to collect two specimens for influenza testing, unless both rapid testing and PCR testing are needed. Acceptable swabs for influenza testing include sterile Dacron, rayon, or nylon swabs with plastic shafts. All specimens should be placed in viral transport media and refrigerated or transported to the laboratory immediately.

A summary of currently available influenza testing is as follows:

Test	Physician should order	Comments
Rapid Influenza A & B	Rapid flu A & B	A negative result does not exclude influenza infection of any type
PCR for Influenza A & B with reflex testing for novel H1N1 influenza A	Influenza A, B & H1N1 PCR	Detects seasonal influenza A & B and the novel H1N1 strain
PCR for novel H1N1 Influenza A	Influenza A H1N1 PCR	Detects all influenza A strains with novel H1N1 reported when present

Updated WHO Classification of Myelodysplastic Syndrome

The World Health Organization (WHO) recently published an updated version of the *WHO Classification of Tumors of the Hematopoietic and Lymphoid Tissues.* The updated 2008 4th edition includes revisions to the classification and criteria for diagnosis of myelodysplastic syndrome (MDS). Similar to the 3rd edition, the morphologic criteria for

diagnosis in the 4th edition require at least 10% of cells in the erythroid, granulocytic, or megakaryocytic lineage to show dysplasia. However, the revised WHO criteria also allow for a presumptive diagnosis of MDS if certain recurring chromosomal abnormalities are present, even in the absence of characteristic morphologic features (Blood. 2009;114(5):937-51). These chromosomal abnormalities are listed below.

Unbalanced Abnormalities	Balanced Abnormalities
–7 or del(7q)	t(11;16)(q23;p13.3)
–5 or del(5q)	t(3;21)(q26.2;q22.1)
i(17q) or t(17p)	t(1;3)(p36.3;q21.1)
–13 or del(13q)	t(2;11)(p21;q23)
del(11q)	inv(3)(q21q26.2)
del(12p) or t(12p)	t(6;9)(p23;q34)
del(9q)	
Idic(X)(q13)	

A significant change to the classification of MDS in the 4th edition is a replacement of the category "refractory anemia" with "refractory cytopenias with unilineage dysplasia" (RCUD). This new category includes refractory anemia (RA), refractory neutropenia (RN) and refractory thrombocytopenia. Peripheral blood (PB) findings in RCUD are unicytopenia or bicytopenia and no or rare blasts. The bone marrow (BM) findings are unilineage dysplasia in ≥ 10% of the cells in one myeloid lineage, less than 5% blasts and < 15% ringed sideroblasts. In addition, the two similar categories "refractory cytopenia with multilineage dysplasia" (RCMD) and "refractory cytopenia with multilineage dysplasia and ringed sideroblasts" (RCMD-RS) have been combined into one RCMD category in the new edition. The PB and BM findings in the new category remain the same as those in the 3rd edition.

Other revisions in the 4th edition include changes to the "myelodysplastic syndrome – unclassified" (MDS – U) category and a minor change to the "MDS associated with isolated del (5q)" classification. PB findings in MDS – U are cytopenias and blasts ≤ 1%. BM findings are unequivocal dysplasia in less than 10% of cells in one or more myeloid cell lines when accompanied by a cytogenetic abnormality (Table) and < 5% blasts. These findings are similar, but more specific than those found in the 3rd edition for MDS – U. The only updated change to the MDS associated with isolated del (5q) classification is no or rare blasts (< 1%) instead of < 5% blasts in the peripheral blood.

Urine Culture If Indicated

Appropriate antibiotic therapy for urinary tract infection can be delayed in the time period between receipt of an abnormal urinalysis result by a clinician, and ordering of a urine culture. Likewise, unnecessary urine cultures may be requested based on symptoms and prior to receipt of a normal urinalysis result. Physicians have the option of requesting "Urinalysis with culture if indicated." Urine specimens with this order will have a urine culture performed automatically when either the leukocyte esterase or nitrite is positive, or an abnormal number of WBC's is seen on microscopic examination.

Specimen requirement for urinalysis with urine culture is 5 mL of urine in a sterile container, refrigerated for up to 24 hours prior to receipt by the laboratory.

Positive Drug Screen after Poppy Seed Ingestion

Opiates are natural or synthetic drugs that have a morphine-like pharmacological action. Opiates include morphine, codeine, hydrocodone, hydromorphone and oxycodone. Heroin is a synthetic opiate that is made from morphine. Both codeine and heroin are metabolized to morphine.

Poppy seeds contain a number of substances including morphine and codeine. After the ingestion of large quantities of poppy seeds, a urine drug screen may be positive for opiates. Most urine drug screens have an opiate threshold of 300 ng/mL.

The cut-off used for confirmation of both codeine and morphine is 2000 ng/mL. Poppy seed ingestion is usually associated with concentrations well below this cut-off. However, some ethnic communities that cook with poppy seed paste may have very high urine morphine concentrations.

Morphine levels usually peak within 3 to 8 hours and remain positive for as long as 48 to 60 hours after ingestion of poppy seeds.