WEST VIRGINIA BUREAU FOR PUBLIC HEALTH

HEALTH ADVISORY (23)

UPDATED H1N1 (SWINE ORIGIN) INFLUENZA GUIDANCE: DIAGNOSIS, MANAGEMENT, AND REPORTING

TO: **West Virginia Healthcare Providers, Healthcare Facilities, Laboratories and Local Health Departments**

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West Virginia Department of Health and Human Resources

DATE: **July 20, 2009**

LOCAL HEALTH DEPARTMENTS: PLEASE DISTRIBUTE TO HEALTHCARE PROVIDERS, FACILITIES, LABORATORIES AND OTHER APPLICABLE PARTNERS

OTHER RECIPIENTS: PLEASE DISTRIBUTE TO ASSOCIATION MEMBERS, STAFF, ETC.

This update provides clinician, laboratory, and health department guidance on diagnosis, management, and reporting now that H1N1 infection has been well established across WV.

Situational Update: As of mid July, West Virginia has reported laboratory-confirmed cases of novel H1N1 influenza among West Virginia residents from 29 of 55 counties. For the last four weeks, all influenza isolates received in the Office of Laboratory Services have been novel H1N1. There are no identified seasonal strains known to be circulating in the state at this time. Since mid June, local health departments have investigated 9 outbreaks of novel H1N1 or influenza-like illness in camps, daycares, and businesses. While the virus has clearly seeded communities throughout West Virginia, levels of influenza-like illness remain at baseline. Providers can follow weekly updates to influenza surveillance data at http://www.wvdhhr.org (follow link to “Swine Flu Updates”, “A-Z Index”, “Influenza”, and “2008-09 Surveillance Data”).

Key Changes: Now that H1N1 is well-established in the state of West Virginia, providers should apply usual practices in diagnosis and treatment of influenza-like illness. In particular, when testing will impact clinical management, providers are encouraged to seek standard point of care laboratory diagnostic services for influenza A. This allows for results to be available within a timeframe that will impact management decisions (antiviral or antibiotic treatment and decisions regarding isolation, school or work restrictions). Patient management of influenza can typically be based on surveillance data, clinical presentation, history (including risk factors for complications), and point of care testing, when indicated. It typically does not require definitive confirmation of

viral subtype. Recent guidelines from the Centers for Disease Control and Prevention (CDC) and the Infectious Disease Society of America (IDSA) related to influenza testing and treatment (developed for seasonal flu but applicable to the current situation) are summarized in attachments to this health alert as a review of 'best practices' for influenza diagnosis and treatment.

At this time, the primary role of state and federal public health labs should be the provision of community surveillance data on circulating strains and their resistance patterns. Surveillance data provides the context within which clinicians can make effective management decisions.

PROVIDER RECOMMENDATIONS

1. Testing for Influenza

Who should be tested?
If the result of influenza testing will influence clinical management (decisions on initiation of antiviral treatment, impact on other diagnostic testing, antibiotic treatment decisions, or infection control practices), high risk (see Attachment I) and other persons with influenza-like illness should be tested for influenza using available tests. See testing guidelines from:

- Infectious Disease Society of America (IDSA) (Attachment II) or
- Centers for Disease Control and Prevention (CDC) http://www.cdc.gov/h1n1flu/guidance/ .

What tests are recommended in clinical settings?
Per IDSA guidelines, "*tests that yield results in a timely manner that can influence clinical management* (decisions on initiation of antiviral treatment, impact on other diagnostic testing, antibiotic treatment decisions, and infection control practices) *are recommended to guide patient care*." Providers should familiarize themselves with the performance characteristics of the tests available in their laboratories and choose wisely among options, keeping in mind that for some tests, performance varies according to background incidence of influenza. (See Attachment III). Novel H1N1 (Swine) virus is an Influenza A virus. At present, an influenza A virus that is reported as "negative for human H1 and H3" or as "non-subtypable" is, in all probability, novel H1N1 (swine) virus.

Some tests, especially the rapid antigen test, must be interpreted in the context of local influenza activity. Information on influenza activity can be obtained from your local health department or laboratory or from the WV Bureau for Public Health at: http://www.wvdhhr.org, following links to "Swine Flu Updates", "A-Z Index", "Influenza", and "2008-09 Surveillance Data". Information on interpretation of rapid test results is found in Attachment IV.

What public health surveillance testing should be done?
To focus efforts on surveillance, the state Office of Laboratory Services (OLS), effective immediately, will focus all H1N1 testing efforts on the following specimen submissions:

A. Sentinel providers: two (2) surveillance specimens per week per sentinel provider.
B. Sentinel hospitals: five (5) influenza A isolates per sentinel hospital per week
C. Reported outbreaks: 8-10 specimens per outbreak for characterization of the outbreak strain.

Do not test or provide antivirals for individuals in whom you do not suspect influenza infection. See suggestions for counseling the worried well at http://www.wvdhhr.org. [Follow links to "Swine Flu Updates", "A - Z Index", "Influenza (Swine)", under "General Information"].

2. **Infection Control Precautions** for suspected H1N1(Swine) influenza patients:
   A. Always inform infection control by phone ***before*** a case is referred to the emergency room or admitted to the hospital.
   B. Follow current H1N1 (Swine) influenza A infection control guidelines at: http://www.cdc.gov/h1n1flu/guidance under "Infection Control".

3. **Treatment and Prophylaxis:**
   Supportive care helps address symptoms. Antivirals play an important role in some but not all individuals with novel H1N1 infection. Novel H1N1 flu virus currently remains sensitive to oseltamivir (Tamiflu®) and zanamivir (Relenza®), but resistant to amantadine (Symmetrel®) and rimantadine (Flumadine®).

   Patients who are severely ill or hospitalized or those at high risk for complications of influenza (See Attachment I) *should* be offered antiviral medication. This may be beneficial even if past the initial 48 hours of illness. Antiviral treatment is usually not necessary for mild to moderately ill persons who are not at risk for complications.

   Close contacts of patients with novel H1N1(Swine) influenza can be *considered* for antiviral prophylaxis if they are at high risk for complications or if they are health care workers or other first responders with a recognized unprotected exposure to an H1N1 patient.

   Overuse of antiviral agents may lead to unnecessary resistance and side effects. Providers should familiarize themselves with more detailed antiviral treatment guidelines posted at: http://www.cdc.gov/h1n1flu/guidance (click on "Antiviral Recommendations" under "Clinician Guidance") or published by the Infectious Disease Society of America (Clinical Infectious Diseases 2009; 48:1003–32). (See Attachment V).

4. **Reporting Cases and Outbreaks**:
   A. Report aggregate cases of influenza-like illness (ILI) weekly to the local health department in accordance with local health guidelines. Influenza-like illness is defined as:
      1) Fever 100°F (36°C) *and*
      2) Cough or sore throat without another identified cause.

      ILI reporting can provide your practice and others information on the level of disease activity locally and statewide, helping guide rapid test result interpretation and putting other patient management decisions in context.
   B. Report deaths suspected to be related to H1N1 (Swine) influenza infection to the local health department immediately. Immediately fax a preliminary copy of the death certificate to West Virginia Vital Registration at (304)-558-1051.
   C. Report outbreaks immediately to the local health department.

LABORATORY RECOMMENDATIONS

1. **Testing guidelines:** Laboratories should evaluate the influenza testing methods they make available to providers in light of recently published Infectious Disease Society of America (IDSA) guidelines. IDSA guidelines are summarized in Attachment III. See also:
   CDC guidelines for seasonal influenza testing: http://www.cdc.gov/flu/professionals/diagnosis/ and CDC guidelines for H1N1 (Swine) influenza: http://www.cdc.gov/h1n1flu/guidance/ .

2. **Use of rapid tests for influenza:** Many laboratories in West Virginia rely heavily on rapid tests. Rapid tests must be interpreted within the context of current influenza activity. For information on influenza activity in West Virginia, see: http://www.wvdhhr.org and follow links to "Swine Flu Updates", "A-Z Index", "Influenza", and "2008-09 Surveillance Data". For information on rapid test interpretation within the context of flu activity, see Attachment IV.

3. **Confirmation and Sub-typing at Office of Laboratory Services:** When flu viruses are known to be circulating in the community, a subset of influenza specimens or isolates from WV labs should be confirmed and subtyped at the Office of Laboratory Services (OLS).

   Effective immediately, the OLS will accept specimens from:
   A. Reported outbreaks (8-10 specimens per outbreak for characterization of the outbreak strain),
   B. Sentinel hospitals (5 influenza A isolates per sentinel hospital per week); and
   C. Sentinel providers (2 specimens per sentinel provider per week).

   Contact OLS for shipping containers and other supplies (Ph. 304-558-3530, Fax. 304-558-2006). Instructions for specimen collection and submission are found at: http://www.wvdhhr.org/labservices/ .

4. **Reporting Responsibilities for West Virginia Laboratories:** All laboratory results positive for influenza by RT-PCR, immunofluorescence or culture must be reported weekly in aggregate for the week ending on Saturday (MMWR week) by close of business on Monday of each week. Report :
   A. Total tests done; and
   B. Total positive for influenza A (by subtype, if available); and
   C. Total positive for influenza B.

LOCAL HEALTH DEPARTMENT REPORTING RESPONSIBILITIES

1. Report influenza-like illness by close of business on Monday for the week ending Saturday. Late reports will not be reflected in influenza activity reports that go to CDC on Tuesdays.
2. Using the line list at http://www.wvidep.org [following links to "A-Z index", Influenza (Swine)" and clicking on the line list under "Required Forms"] report confirmed and probable cases of H1N1 novel influenza weekly by close of business on Tuesdays. Data are reported to CDC on Wednesdays. Late and incomplete reports will not be reflected in the national data.
3. Communicate regularly with sentinel providers to address any problems with reporting or laboratory testing.
4. Report outbreaks immediately to Infectious Disease Epidemiology at (800)-423-1271. To support outbreak investigation efforts, an outbreak toolkit is now available at: http://www.wvidep.org [follow links to "A – Z index", "Influenza (Swine)"].

This message was directly distributed by the West Virginia Bureau for Public Health to Local Health Departments, Health Professional Organizations and Other Health Partners. Receiving entities are responsible for further disseminating the information to the targeted audiences noted.
Categories of Health Alert messages:
Health Alert: Conveys the highest level of importance, warrants immediate action or attention.
Health Advisory: Provides important information for a specific incident or situation. May not require immediate action.
Health Update: Provides updated information regarding an incident or situation. Unlikely to require immediate action.

Who is at High Risk for Influenza Complications? Information for Providers

Adapted from **Clinical Infectious Diseases 2009; 48:1003–32 and CDC.**

Persons at high risk for seasonal influenza* complications include:

- Children less than 5 years, especially children less than 2 years
- Persons with asthma or other chronic pulmonary diseases, such as cystic fibrosis in children or chronic obstructive pulmonary disease in adults
- Persons with hemodynamically significant cardiac disease
- Persons who have immunosuppressive disorders or who are receiving immunosuppressive therapy
- HIV-infected persons
- Persons with sickle cell anemia and other hemoglobinopathies
- Persons less than 19 years receiving long-term aspirin therapy
- Persons with chronic renal dysfunction
- Persons with cancer
- Persons with chronic metabolic disease, such as diabetes mellitus
- Persons with neuromuscular disorders, seizure disorders, or cognitive dysfunction that may compromise the handling of respiratory secretions
- Pregnant women
- Adults aged ≥ 65 years
- Residents of any age of nursing homes or other long-term care institutions

*** As of July 2009, risk factors for complications with novel H1N1 virus are considered to be the same as those for seasonal flu.**

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Who Should I Test for Influenza? Information for Providers

Adapted from **Clinical Infectious Diseases 2009; 48:1003–32 and CDC**

During influenza season*, testing should be considered in the following persons *if the result will influence clinical management* (use of antivirals, impact on other diagnostic testing, antibiotic treatment decisions, and infection control practices):

- Outpatient immunocompetent high risk§ children and adults presenting with acute febrile respiratory symptoms, within 5 days after illness onset
- Outpatient immunocompromised children and adults presenting with febrile respiratory symptoms, irrespective of time since illness onset
- Hospitalized children and adults with fever and respiratory symptoms, including those with a diagnosis of community-acquired pneumonia, irrespective of time since illness onset
- Elderly persons and infants presenting with suspected sepsis or fever of unknown origin, irrespective of time since illness onset
- Children with fever and respiratory symptoms presenting for medical evaluation, irrespective of time since illness onset
- Persons of any age who develop fever and respiratory symptoms after hospital admission, irrespective of time since illness onset
- Immunocompetent persons with acute febrile respiratory symptoms who are not at high risk§ of developing complications secondary to influenza infection may be tested by sentinel providers in West Virginia

At any time of the year, testing should occur for the following persons (until outbreak is characterized)

- Health care personnel, residents, or visitors in an institution experiencing an influenza outbreak who present with febrile respiratory symptoms, within 5 days after illness onset
- Persons who are epidemiologically linked to an influenza outbreak (e.g., household and close contacts of persons with suspected influenza, returned travelers from countries where influenza viruses may be circulating, participants in international mass gatherings, and cruise ship passengers), who present within 5 days after illness onset

*** Influenza Season references times when flu viruses (seasonal or novel) are known to be circulating. WV influenza surveillance data is available at: http://www.wvidep.org (follow links to "A – Z index", "Influenza", and look for current year surveillance data link). National surveillance data is available at: http://www.cdc.gov/flu/weekly/fluactivity.htm.**

Commercial Testing for Influenza - Information for Providers

The following commercial tests can be used for diagnosis of influenza. Testing can be helpful in clinical decision-making, including use of antivirals or antibiotics, infection control, and duration of isolation or restriction from work or school. Providers should familiarize themselves with test characteristics and choose wisely among available options.

Adapted from **Clinical Infectious Diseases 2009; 48:1003–32** For information on specimen collection, check with your laboratory.

Test	Time to results	Comments
RT-PCR	2-4 h	High sensitivity and specificity. Highly recommended. Tests can detect and distinguish influenza A and B and influenza A subtype*.
Immunofluorescence		
Direct fluorescent antibody (DFA)	2-4 h	Moderately high sensitivity and high specificity. Recommended. Tests can distinguish influenza A and B and other respiratory viruses.
Indirect fluorescent antibody (IFA)	2-4 h	
Rapid influenza diagnostic tests		Low to moderate sensitivity and high specificity. Recommended, but limitations of the test should be recognized when interpreting results. Depending on the test chosen, will either detect influenza A only, will detect and distinguish between influenza A and B, or will detect but not distinguish between influenza A and B.
Antigen detection (EIA)	10-20 min	
Neuraminidase detection assay	20-30 min	
Viral culture		Moderately high sensitivity and highest specificity; this test is important for confirming screening test results and for public health surveillance, but it is not useful for timely clinical management.
Shell vials	48-72 h	
Isolation in cell culture	3-10 days	
Serologic tests	weeks	Not recommended for timely clinical management. Requires paired acute and convalescent sera; may be useful for retrospective diagnosis.

Novel H1N1 (Swine Flu) virus is an Influenza A virus.

*** As of July 2009, an influenza A virus that is reported as "negative for human H1 and H3" or as "non-subtypable" by RT-PCR is, in all probability, novel H1N1 (swine) virus.**

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Interpretation of Rapid Antigen Tests for Influenza - Information for Providers

Adapted from **Clinical Infectious Diseases 2009; 48:1003–32**

Rapid antigen tests are widely used for diagnosis of influenza in West Virginia, but results should be interpreted in the context of current influenza activity. West Virginia influenza surveillance data is available at: http://www.wvidep.org (follow links to "A – Z index", "Influenza", and look for current year surveillance data link). National surveillance data is available at: http://www.cdc.gov/flu/weekly/fluactivity.htm.

Rapid tests for influenza have a median sensitivity of 70-75% and a median specificity of 90-95% when compared with viral culture or PCR. Sensitivity for children (70-90%) is better than that for adults (<40% to 60%).

Influenza Activity	Positive Predictive Value[1] [1]Proportion of persons with positive test results who have influenza	Negative Predictive Value[2] [2]Proportion of persons with negative test results who do not have influenza
Very low (off-season*)	Very low^	Very high
Low (early or late season*)	Low to moderate^	High
High (community outbreaks)	High	Low to moderate^
Peak activity	Very high	Low^

^Consider confirming these results with PCR or culture

* Influenza Season references times when influenza viruses (seasonal or novel) are known to be circulating.

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Attachment IV

Who Should Be Treated for Influenza - Information for Providers

Adapted from **Clinical Infectious Diseases 2009; 48:1003–32**

Treatment with antiviral agents is most effective when begun within 48 hours of symptom onset. Antiviral therapy shortens the duration of illness by about one day, and may not be cost-effective in low risk or mildly ill persons. As with all medications, risks, benefits, and costs should be considered. The following table can be used as a guide to identify persons most likely to benefit from therapy. These guidelines are not a substitute for professional judgment. The information below assumes sensitivity of the virus to the selected antiviral and widely available antiviral supply. With concerns about supply, focus should be on persons at high risk for complications and hospitalized individuals.

Level of diagnostic certainty	≤ 48 hours from symptom onset	Patient	Treatment (*)
Laboratory confirmed or highly suspected	yes	Hospitalized	Recommended (A-II)
Laboratory confirmed or highly suspected	yes	High risk	Recommended (A-II)
Laboratory confirmed; specimen obtained > 48 hours after onset	no	Hospitalized	May be beneficial (B-II)
Laboratory confirmed; specimen obtained > 48 hours after onset	no	High risk outpatient with illness that is not improving	May be beneficial (C-III) (fewer data available)
Laboratory confirmed or highly suspected	yes	Outpatient not at high risk wanting to shorten illness or further reduce relatively low risk of complications	Consider (A-I)
Laboratory confirmed or highly suspected	yes	Patient in contact with high risk individuals	Consider
Laboratory confirmed; specimen obtained >48 hours after onset	no	Outpatient not at high risk with persisting moderate to severe illness	May be beneficial (B-III) (Safety and efficacy not evaluated)

* Information in parentheses references the US Public Health Service Grading System for Ranking Recommendations in Clinical Guidelines. A – C references the strength of recommendation; I – III references quality of evidence. See article for further description of system.

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Attachment V