



Swine-origin Influenza Virus (S-OIV) has been confirmed in Nebraska and additional cases are pending confirmation at CDC. This disease is now appearing in Nebraska residents with no travel history outside Nebraska. A history of travel to Mexico, southern California or other areas known to have S-OIV MAY NOT BE USEFUL in identifying cases of S-OIV.

### **Incubation and contagious periods**

Public health epidemiologists are currently studying the specific incubation and contagious periods for S-OIV. In general, influenza symptoms develop 1 to 7 days following exposure, but most often within the first four days. Persons who develop influenza infection can shed the virus from one day before to seven days after onset of illness, or until symptoms resolve. Children can shed the virus for ten days following onset of symptoms or until symptoms resolve.

### **Provisional recommendation for whom to test for influenza:**

For patients with fever plus cough or sore throat:

- 1) Don't do a flu test if you have a known diagnosis of a non-influenza illness such as strep throat;
- 2) Do a rapid flu test if the illness is moderate or severe (This is a judgment call on the part of the health care provider. Don't test persons with a mild ILI).
- 3) Do a rapid flu test if the patient has a positive travel history: if travel to Mexico or other high risk areas, or contact with ill persons with travel to high risk areas.

For patients with a rapid flu test (+) for Influenza B, no further testing is indicated.

Patients with a (+) rapid flu test for Influenza A should have a nasopharyngeal specimen forwarded to the Nebraska Public Health Laboratory (NPHL) for PCR. Send the specimen on a cold pack with a COMPLETED NPHL requisition, available at our website: <http://www.dhhs.ne.gov/H1N1FLU/>

For patients whose condition is strongly suspicious of Influenza but whose rapid flu test is (-), the clinician must contact the local health department for permission prior to forwarding a quality nasopharyngeal specimen to the NPHL for PCR.

### **Guidance for influenza testing:**

**RAPID FLU TESTS:** A survey of suppliers indicates that rapid flu test kits are available in distributors' inventories. Please contact our office (402-471-1374 or 471-0935) if you are unable to locate rapid flu tests through your usual channels.

**VIRAL TRANSPORT MEDIA:** For providers lacking in-office viral collection and transport materials, a limited number of viral specimen collection/transport materials will be sent to Nebraska's hospital-based laboratories where providers can refer patients or obtain collection kits. Call NPHL client services with questions or concerns at 402-559-2440 or toll free at 866-290-1406.

Everyone collecting specimens for influenza testing needs to review how to properly collect a nasopharyngeal specimen. A brief training video is available at the Nebraska Division of Public Health website: <http://www.dhhs.ne.gov/H1N1FLU/>

The currently available rapid influenza tests, viral cultures, and PCR tests are believed capable of detecting the swine flu variant (S-OIV), provided a quality nasopharyngeal specimen is collected. Check the web site below for types of rapid tests.  
<http://www.cdc.gov/flu/professionals/diagnosis/rapidlab.htm>

### **Guidance for isolation:**

Patients suspected of influenza need to be advised to MINIMIZE their contact with other people by staying home from work or school. Advise them to practice good handwashing and cough “etiquette” (cough or sneeze into a sleeve or coat, not into the hand or the open air). Persons exposed to patients with influenza should be counseled about an informal, modified quarantine: they may develop influenza and should therefore minimize their exposure to other people and be prepared to immediately isolate themselves at home at the onset of any flu symptoms.

### **Infection control**

Health Care Providers should use recommended infection control precautions to minimize the risk of transmission in the health care setting. Whenever possible, health care providers should wear an N95-fit tested respirator. In the absence of N95-fit tested respirators, HCPs should consider standard surgical facemasks for both staff and symptomatic patients. Additional infection control guidance is available at the CDC web site: [http://www.cdc.gov/swineflu/guidelines\\_infection\\_control.htm](http://www.cdc.gov/swineflu/guidelines_infection_control.htm)

### **Public health flu surveillance**

This is a provisional plan and may be revised in the near future, as events dictate. We are asking providers (labs, physicians, etc) to make a fax or phone report of patients with a (+) rapid flu A test to their LOCAL HEALTH DEPARTMENT (LHD) (see here for how to locate your LHD: <http://www.publichealthne.org/saccho.htm>). The LHD staff will obtain relevant information necessary for public health tracking, follow-up and infection control.

Current assumptions made for these clinical guidance recommendations

- There are adequate stores of antiviral medications to treat all seriously ill patients.
- Prophylactic medication supply limitations are likely and will require prioritizing both health care workers (HCW) and high-risk individuals for post-exposure prophylaxis.
- Most Influenza illness, including S-OIV infection, will be mild to moderate and self-limiting.

### **Current Surveillance Data:**

Influenza Samples Studied at Nebraska Public Health Laboratory during the week ending May 2, 2009:

Influenza Isolates Received:	46
Influenza A:	40 (87%)
Influenza B:	6 (13%)

Of the 40 Influenza A isolates studied:	
Seasonal H1:	27 (67.5%)
Seasonal H3:	2 ( 5.0%)
Probable/confirmed S-OIV/H1N1:	11 (27.5%)

### **Policy regarding treatment of Influenza A**

- Not every patient with Influenza-like illness needs to be tested/treated;
- Drug treatment should begin within the first 48 hours of symptom onset; if begun more than 48 hours post-symptom-onset, therapy is of negligible benefit;
- Currently we are seeing more seasonal type A Influenza than S-OIV/H1N1;
- Seasonal Influenza Type A H1N1 is RESISTENT to oseltamivir [Tamiflu] and sensitive to zanamivir [Relenza];
- Seasonal Influenza Type A H3N2 is susceptible to the neuraminidase inhibitors oseltamivir [Tamiflu] and to zanamivir [Relenza] and resistant to adamantanes (amantadine and rimantadine);
- S-OIV is SUSCEPTIBLE to neuraminidase inhibitors, oseltamivir (Tamiflu) and to zanamivir (Relenza) and resistant to adamantanes (amantadine and rimantadine)

Based on these facts, clinicians should consider the following treatment recommendations:

- Patients with a rapid flu test (+) for Influenza B can be treated with zanamivir (Relenza) or oseltamivir (Tamiflu)
- Patients with a rapid flu test (+) for Influenza A could have one of three viruses: seasonal H1N1, seasonal H3N2, or S-OIV (H1N1). Because of the varied susceptibility patterns, consider the following empiric therapy advice:
  - 1) zanamivir (Relenza) will cover all three types of Influenza A
  - 2) combination therapy of oseltamivir (Tamiflu) plus an adamantine (rimantadine or amantadine) will cover all three types of Influenza A and can be used in patients where zanamivir can not be used (e.g., patient is <7 years old, has chronic underlying airways disease, or cannot use the zanamivir inhalation device).

Note:

- 1) Single therapy with oseltamivir will NOT cover seasonal Influenza A H1N1 which appears to be the most common Influenza A virus currently circulating in Nebraska.
- 2) For patients with **known** infection with or exposure to H3N2 or S-OIV, treatment with oseltamivir alone is acceptable.
- 3) For patients with **known** infection with or exposure to seasonal H1N1, combination therapy of oseltamivir (Tamiflu) plus an adamantine (rimantadine or amantadine) is recommended.

- We will continue to use PCR lab testing at the NPHL to closely track the relative distribution of seasonal H1N1 vs. H3N2 vs. S-OIV/H1N1 and provide Nebraska-specific treatment recommendations to Nebraska clinicians. Please note these will be Nebraska-specific recommendations. Other states may experience different patterns of influenza strains, and treatment recommendations may therefore vary from state-to-state.

- Testing and treatment should be restricted to moderately to severely ill and/or hospitalized patients, including those with underlying diseases:
  - Chronic pulmonary, cardiovascular, renal, hepatic, hematological, or metabolic disorders (including diabetes mellitus)
  - Immunosuppression
  - HIV-infected persons
  - Compromised respiratory function, including conditions which increase the risk for aspiration
  - Pregnancy
  - Persons aged  $\geq 50$  years (especially those  $> 65$  years)
  - Residence (regardless of age) in a nursing home or other long-term care institution
  - Children  $< 5$  years (especially those  $\leq 2$  years, see special guidance on young children in Section 6)
- **Clinicians should NOT be prescribing neuraminidase inhibitors to the GENERAL PUBLIC prophylactically or in anticipation of acquiring influenza.**
- Antiviral treatment can be considered for the following: any confirmed, probable, or suspected cases of S-OIV infection.

### Antiviral Prophylaxis

- Persons who are candidates for chemoprophylaxis (e.g., residents in an assisted living facility during an Influenza outbreak, or persons who are at higher risk for influenza-related complications and have had recent household or other close contact with a person with laboratory-confirmed influenza) should be provided with medications most likely to be effective against the influenza virus that is the cause of the outbreak, if known.
- Respiratory specimens from ill persons during institutional outbreaks should be obtained and sent for testing to determine the type and subtype of Influenza A viruses associated with the outbreak and to guide antiviral therapy decisions.
- Persons whose need for chemoprophylaxis is due to potential exposure to a person with laboratory-confirmed Influenza A (H3N2) or Influenza B should receive oseltamivir or zanamivir. Zanamivir should be used when persons require chemoprophylaxis due to exposure to seasonal Influenza A (H1N1) virus. Rimantadine can be used if zanamivir use is contraindicated.
- When prophylaxis is indicated for Influenza A S-OIV, either oseltamivir or zanamivir should be initiated as soon as possible following the exposure and should continue for 10 days following the last known exposure to S-OIV infection.

Antiviral chemoprophylaxis is recommended for the following individuals:

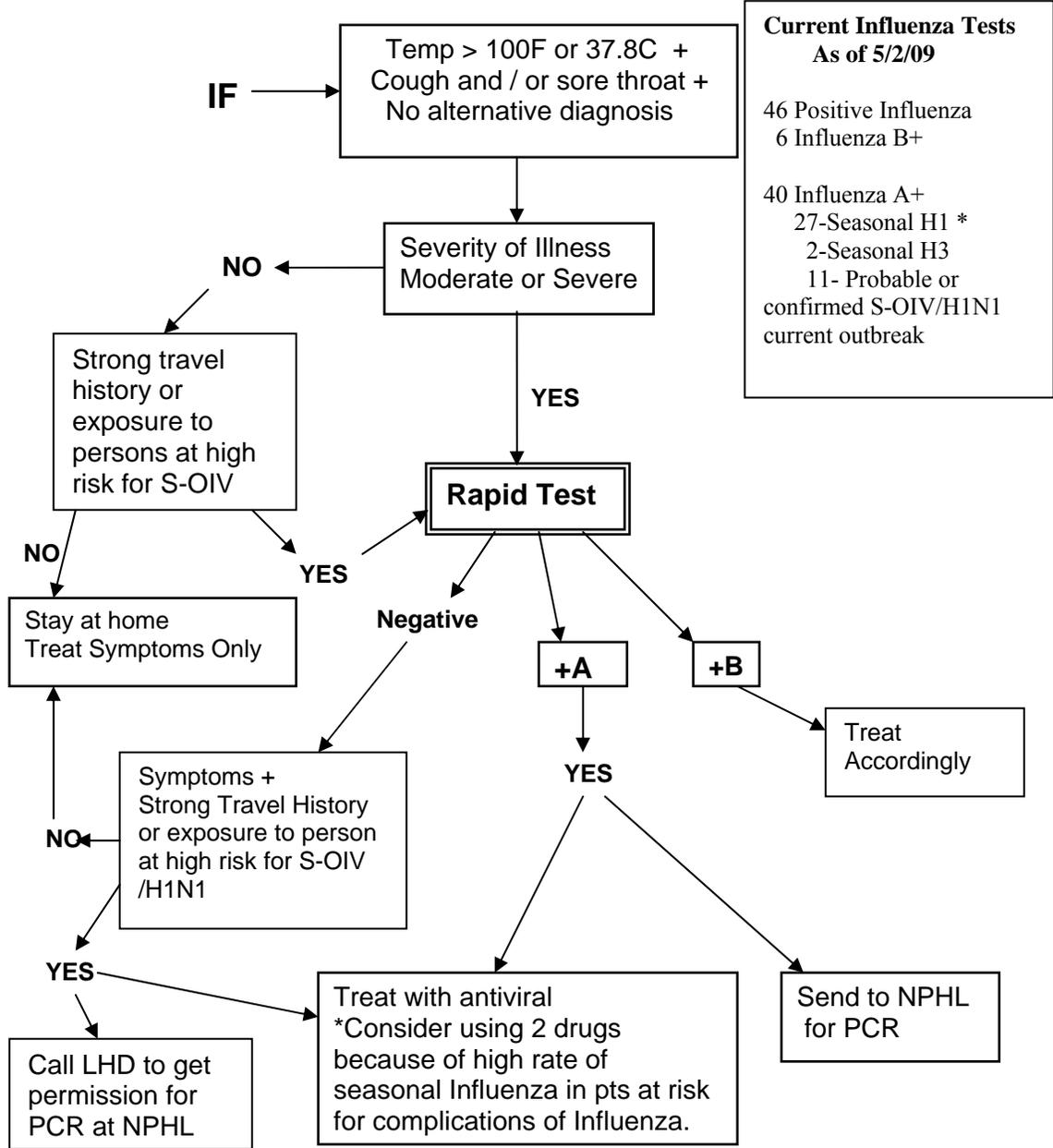
1. Household close contacts who are at high-risk for complications of Influenza of a confirmed or probable case.
2. Health care workers or public health workers who were not using appropriate personal protective equipment during close contact with an ill confirmed, probable, or suspected case of S-OIV infection during the case's infectious period.

3. Children attending school or daycare who are at high-risk for complications of influenza and who had close contact (face-to-face) with a confirmed, probable or suspected case.

Antiviral chemoprophylaxis can be considered for the following:

1. Health care workers who are at high-risk for complications of influenza who are working in an area of the healthcare facility that contains patients with confirmed S-OIV cases, or who are caring for patients with any acute febrile respiratory illness.
2. Travelers to Mexico who are at high-risk for complications of influenza. (Note: A travel warning is currently in effect indicating that nonessential travel to Mexico should be avoided).
3. First responders who are at high-risk for complications of influenza and who are working in areas with confirmed cases of S-OIV infection.

# Nebraska Recommendations for Testing, Treatment and Prophylaxis of S-OIV/ H1N1 Current Outbreak



**Current Influenza Tests  
As of 5/2/09**

46 Positive Influenza  
6 Influenza B+

40 Influenza A+  
27-Seasonal H1 \*  
2-Seasonal H3  
11- Probable or  
confirmed S-OIV/H1N1  
current outbreak

**Recommended Prophylaxis:** for 1) health care workers who did not use proper PPE or those with chronic diseases, 2) household contacts of confirmed Influenza with chronic medical conditions, 3) children attending school or daycare who are at high-risk for complications of Influenza and who had close contact (face-to-face) with a confirmed/probable at risk for complications.

\*Because seasonal influenza is still relatively common, persons with a (+) rapid flu A lab test and at high risk or severely ill should be treated with zanamivir, or two-drug combination therapy (oseltamivir plus an adamantane [amantadine or rimantadine]).