

Investigative Guideline: Novel Influenza A such as H5N1

(Current as of March 2007, be sure to check for updates prior to using)

Novel Influenza A is defined as a subtype not circulating in humans as of 2007; this would include H2N2 which circulated from 1957-1968 and other subtypes not known to have widely infected humans in the past. Currently H5N1 has been identified in poultry and wild birds in Asia, Europe, Africa and the Middle East and has been transmitted directly from birds to humans. If H5N1 continues to circulate widely in poultry, the potential for emergency of a pandemic strain remains high.

This guideline is intended to be used for investigation of suspected or proven cases of Novel Influenza A that occur sporadically OR at the earliest stages of a human pandemic. Once a pandemic is widespread, individual case investigation will no longer be recommended.

1. DISEASE REPORTING

A. Purpose of Reporting and Surveillance

1. To prevent the spread of Novel Influenza;
2. To identify other cases of Novel Influenza;
3. To identify contacts of suspected Novel Influenza cases;
4. To characterize the epidemiology of Novel Influenza;
5. To clarify the means of Novel Influenza transmission;

B. Laboratory and Physician Reporting Requirements.

All Oregon physicians, other healthcare providers, and laboratorians are required by law to report any Novel Influenza case immediately to their Local Health Department as an "Uncommon Illness of Potential Public Health Significance." More specific rules may be enacted as the WHO "phase" and United States "stage" of a pandemic evolve. Infection Control Practitioners and others may make initial reports on-line through eSentinel.

C. Local Health Department Reporting and Follow-up Responsibilities

1. Begin follow-up investigation within 24 hours. Document investigation using the *Novel Influenza A such as H5N1* Case Reporting Form,
2. Notify the Acute and Communicable Disease epidemiologist on-call immediately after basic information is obtained (971 673-1111). The case will be assigned a report number to be used for all subsequent communication and specimen handling. Send a copy of the Case Report Form to Oregon Public Health Division (OPHD) within 1 day of initial report.
3. Initiate special control procedures immediately (see Controlling further spread below). Ensure that possible cases are isolated whether at home or in health care settings.
4. Diagnostic Specimens: Ensure that appropriate acute specimens are obtained for Novel Influenza testing (see Case definitions, diagnosis, and laboratory services below) Specimens from multiple time points may be required to confirm the diagnosis of Novel Influenza because sensitivity of testing can not be known ahead of time.
5. Identify contacts of the case during the period of communicability.

6. Alert infection control practitioners, clinicians, and emergency rooms visited by the patient plus pertinent transportation and other officials related to sites visited by the patient during the period of communicability.
7. Alert clinicians, hospital emergency rooms, student infirmaries, and local officials of the potential for additional cases; encourage them to consider Novel Influenza in persons with fever $\geq 100.4^{\circ}\text{F}$ (38°C), respiratory symptoms, and exposures similar to the patient under investigation.
8. If indicated, prepare and distribute a press release in conjunction with the Oregon State Public Health Division (OSPHD) and hospital.

2. THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic agent

Influenza A is a segmented single-stranded, enveloped, RNA virus.

B. Description of illness

Novel Influenza is expected to be an acute respiratory illness associated with fever. The initial presentation may be non-specific and some patients, such as children may have gastrointestinal or central nervous system illness. There are no laboratory or radiographic studies that clearly distinguish Novel Influenza from other respiratory tract pathogens. To date patients with H5N1 influenza have often had low absolute lymphocyte and platelet counts, but normal counts do not rule out the diagnosis.

C. Mode of Transmission

Novel Influenza is expected to be primarily spread through the droplet route but airborne and contact spread are possible, hence maximal barrier precautions are needed when caring for proven or suspect cases.

D. Period of communicability.

The details of Novel Influenza virus communicability can not be predicted ahead of time. In adults, annual influenza can be detected in respiratory tract specimens from 0.5-1 day before onset to typically one week later; in children and the immunocompromised, the period of shedding can be much longer.

E. Incubation period.

Annual influenza has an incubation period of 1-3 days (usually 2 days). The incubation period for a new strain might be the same or slightly longer.

F. Reservoir

The reservoir for the new strains of influenza seen in humans in the 20th century was birds either by direct or indirect introduction.

G. Treatment

Therapy for a novel strain of influenza would include supportive care, including mechanical ventilation as needed. Antiviral treatment with a neuraminidase inhibitor (oseltamivir or zanamivir), an adamantane (amantadine or rimantadine) or both should be considered although the efficacy is unknown.

3. CASE DEFINITIONS, DIAGNOSIS, AND LABORATORY SERVICES

A. Provisional Case Classification

Updated case definitions will be made available as the global, US, and regional situation requires. Testing criteria for novel influenza (§ 3C below, will serve as a suspect case definition.)

B. Current Suspect Case Definition and Laboratory Testing Criteria (updated June 6, 2006)

Testing for avian influenza A (H5N1) virus infection is recommended for:

A patient who has an illness that:

- Requires hospitalization or is fatal; AND
- Has or had a documented temperature of $\geq 38^{\circ}\text{C}$ ($\geq 100.4^{\circ}$); AND
- Has radiographically confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe respiratory illness for which an alternate diagnosis has not been established; AND
- Has at least one of the following potential exposures within 10 days of symptom onset:
 - A.** History of travel to a country with influenza H5N1 documented in poultry, wild birds and/or humans, AND has at least one of the following potential exposures during travel:
 - Direct contact with (e.g. touching) sick or dead domestic poultry;
 - Direct contact with surfaces contaminated with poultry feces;
 - Consumption of raw or incompletely cooked poultry or poultry products;
 - Direct contact with sick or dead wild birds suspected or confirmed to have influenza H5N1;
 - Close contact (approach within 1 meter [approx. 3 feet]) of a person who was hospitalized or died due to a severe unexplained respiratory illness.
 - B.** Close contact (approach within 1 meter [approx. 3 feet]) of an ill patient who was confirmed or suspected to have H5N1;
 - C.** Worked with live influenza H5N1 virus in a laboratory.

Testing for novel influenza A H5N1 virus infection can be considered on a case-by-case basis, in consultation with OSPHD, for:

- A patient with mild or atypical disease (hospitalized or ambulatory) who has one of the exposures listed above (criteria A, B or C); OR
- A patient with severe or fatal respiratory disease whose epidemiological information is uncertain, unavailable, or otherwise suspicious but does not meet the criteria above (examples include: a returning traveler from an influenza H5N1-affected country whose exposures are unclear or suspicious, a person who had contact with sick or well-appearing poultry, etc.)

(Also see the attached algorithm *Assessment of Suspected Cases of Novel Influenza*)

Complete text of this CDC recommendation is available at:

<http://www2a.cdc.gov/han/ArchiveSys/ViewMsgV.asp?AlertNum=00246>

Updated case definitions will be made available as the global, US, and regional situation requires.

A list of countries where poultry are currently affected can be obtained at:

http://www.oie.int/download/AVIAN%20INFLUENZA/A_AI-Asia.htm

C. Services available at the Oregon State Public Health Laboratory (OSPHL)

Reverse transcriptase polymerase chain reaction (RT-PCR) testing for Novel Influenza types H5 and H7 is available at the OSPHL and will be conducted if approved by ACDP epidemiologists.

Preferred Samples

Both upper and lower respiratory specimens should be collected to allow for detection of H5N1 and other influenza viruses.

Upper respiratory tract

- Posterior-pharyngeal (throat) swabs – currently the highest yield upper respiratory tract specimen for detection H5N1 (unlike human influenza)
- Nasal swabs with nasal secretions (from the anterior turbinate area) or nasopharyngeal aspirates or swabs are appropriate specimens for detecting human influenza A or B, and therefore useful if the influenza is not due to H5N1

Lower respiratory tract

- If the patient is intubated, take a tracheal aspirate or collect a sample during bronchoalveolar lavage.

Blood

- Serum (acute and convalescent if possible)

Swab specimens should be collected using swabs with a Dacron tip and an aluminum or plastic shaft (wooden shafts are not acceptable). Specimens should be refrigerated after collection – NEVER FROZEN. Swabs should be submitted in viral transport media and shipped at 2-8°C.

Virus isolation is not performed at OHPHL at this time for safety reasons; specimens from patients at high risk for novel influenza should not be submitted for culture. Use the attached Virology form #42 and clearly indicate that the testing requested is **Novel Influenza by PCR**.

4. ROUTINE CASE INVESTIGATION

A. Identify the source of infection

Investigate potential exposures during the 10 days prior to onset and especially 4-7 days prior to onset of symptoms. Ask about:

- Travel to country with known novel influenza cases in poultry or humans;
- Contact with such a traveler;
- Contact with domestic poultry or wild birds;
- Names, addresses, phone numbers and e-mail addresses of any household member, playmate, or other contact who is or was sick with similar symptoms;
- Any indoor group activities attended, including air travel, churches, theaters, parties, sport events, family gatherings, and the like;
- Any visit to a healthcare facility—including doctor's office, clinic or hospital—find out exact times and dates;
- Any employment in facility conducting laboratory research on novel influenza;
- Any health care employment.

B. Identify Potentially Exposed Persons

Contact tracing and monitoring will require substantial data-management resources. The information technology needs for timely surveillance and management of contacts of novel influenza cases are under discussion among CDC and partners in state and local health departments. OSPHD will coordinate database management needs among local health departments and CDC.

Initiate identification of a patient's contacts as soon as possible after a diagnosis of novel influenza. Obtain information about the case and their contacts during the case's infectious period (1 day before onset until patient is placed in isolation) from the case, next of kin, workplace representative, or others with appropriate knowledge of the case-patient's recent whereabouts and activities.

Use the contact tracing form in the Novel Influenza case report form and discuss with Acute and Communicable Disease epidemiologist the need for daily follow-up of contacts; this will be decided case by case based on the most up to date information about human to human transmission.

C. Environmental Evaluation

For those with wild or domestic poultry exposure; discuss with OSPHD epidemiology regarding environmental investigation.

5. CONTROLLING FURTHER SPREAD

No vaccine or immune globulin is available but antiviral agents may be used for prophylaxis. Prevention efforts should focus on both isolation of suspected cases, and possibly quarantine and targeted antiviral prophylaxis of exposed individuals. Infection Control procedures currently recommended by CDC are available at <http://www.cdc.gov/flu/avian/professional/infect-control.htm> and as part of the 2006 Oregon Pandemic Influenza Plan <http://oregon.gov/DHS/ph/acd/flu/ofpsupplement4.pdf>

The primary methods of minimizing further spread regardless of setting include

- Isolation of patients during the contagious period;
- Use of personal protective equipment and hand hygiene by those caring for patient;
- For suspected novel influenza maximal precautions are recommended for hospitalized patients including gown, glove, N-95 or better mask, eye protection, and single, negative pressure room;
- Proper disposal of waste and soiled articles;
- Monitoring of exposed individuals for development of fever or respiratory symptoms and possible voluntary quarantine;
- Targeted antiviral prophylaxis of exposed individuals to be individualized on a case by case basis.

6. MANAGING SPECIAL SITUATIONS

A. Isolation and Quarantine

In April 2005, Novel Influenza patients joined those with cholera, plague, tuberculosis, diphtheria, yellow fever, viral hemorrhagic fever, SARS and smallpox as Federally "quarantinable communicable diseases" (<http://www.whitehouse.gov/news/releases/2005/04/20050401-6.html>). The complicated topic of quarantine at the federal level is addressed at the following CDC website (<http://www.cdc.gov/ncidod/dq/lawsand.htm>). Federal authorities however generally delegate such powers to State and Local Health Officials. The applicable Oregon Revised Statute is in Chapter 433 (<http://www.leg.state.or.us/ors/433.html>) and includes powers to quarantine individuals, detain conveyances, and designate quarantine hospitals.

B. Hospital preparedness and surge capacity

This topic is addressed in the document accessible at <http://www.cdc.gov/ncidod/sars/guidance/C/index.htm>. The key activities described include the following priority activities:

- Organize a planning committee to develop an institutional preparedness and response plan and a clear decision-making structure.
- Develop surveillance, screening, and evaluation strategies for various levels of Novel Influenza transmission.
- Develop plans to rapidly implement effective infection control measures and contact-tracing procedures.
- Determine the current availability of infrastructure and resources to care for Novel Influenza patients and strategies for meeting increasing demands.
- Develop strategies to meet staffing needs for Novel Influenza patient care and management.
- Develop strategies to communicate with staff, patients, the health department, and the public.
- Develop strategies to educate staff and patients about Novel Influenza and Novel Influenza control measures.

7. ENHANCED SURVEILLANCE FOR NOVEL INFLUENZA

Enhanced surveillance to identify the onset of a possible pandemic will include targeted specific testing of individual patients as well as syndromic and population based surveillance for acute respiratory illness. Routine surveillance detailed in the 2006 Oregon Pandemic Influenza plan will continue.

A. Targeted testing of individuals

1. Travelers

Influenza will ultimately arrive in Oregon via an overtly ill individual, an ill person with minor symptoms or via an exposed person incubating illness. Since most people arrive in Oregon by interstate highway or air, there are relatively few points at which most vectors of a novel strain of influenza will first enter the state including, but not limited to:

- Interstate 5 (Washington border, California border)
- Interstate 84 (Idaho border)
- Interstate 82 (Washington border)
- Portland International Airport
- Eugene Airport

At airports local health officials will coordinate distribution of informational flyers and posting of information to include:

- Overview of the situation
- Request to seek care if fever or respiratory symptoms develop
- Instructions to bring information sheet to clinician
- Instructions for clinicians on up-to-date criteria and instructions for testing

The informational flyers will be developed by the state office of Acute and Communicable Disease Prevention and distributed to local health authorities via the Health Alert Network plus other redundant channels including web-posting and email.

2. Ill seeking Care from Clinicians

Should novel influenza begin to spread among humans, the state Acute and Communicable Disease Prevention Program will distribute up-to-date case definitions and testing criteria to Oregon clinicians by blast fax, email, web-posting, and dissemination via professional organizations, hospitals, health systems, and large clinics. Specimens will be tested by the Oregon State Public Health Laboratory by PCR using the Laboratory Response Network recommendations.

3. Healthcare workers

Health care workers may be exposed to individuals ill with a new strain of influenza and, during pandemic stages 2-5, acute respiratory illness among these workers should be evaluated and testing done as above if criteria are met. Clinicians will be informed via the mechanisms listed above to inquire about employment status when evaluating the acutely ill.

4. Contacts of suspected or proven cases

Close contacts of those suspected or proven to be infected with the novel strain of influenza are at high risk of acquiring the same disease and should be tested during pandemic stages 2-5. These individuals may be identified through contact tracing of early cases or by interview by the treating clinician.

B. Syndromic and Population based surveillance

1. Population-based surveillance

Our existing population-based acute respiratory illness surveillance collaboration with Kaiser Permanente Northwest provides weekly reports on overall rates of illness and can also be stratified by age, gender, and underlying condition. This health plan provides health care to over 300,000 Oregonians, mostly in the Portland metropolitan area. During pandemic stages 2-5, the reporting frequency will be shortened to daily (Monday-Friday) and the preparedness epidemiology staff will perform daily analysis and provide daily updates to state and local health department staff.

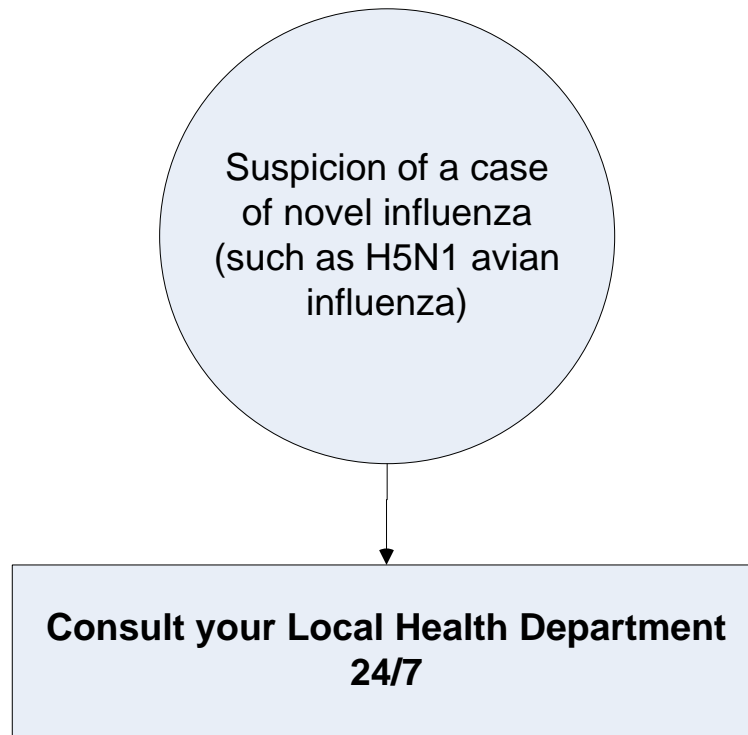
2. Electronic medical record-based surveillance, i.e. OCHIN

In March 2007 the consortium that provides access to an electronic medical record and data warehousing for federally qualified health centers in Oregon began providing weekly extracts of visits for acute respiratory illness. Once this system is operational and validated, it will provide a compliment to the Kaiser Northwest population-based syndromic surveillance system

3. Telephone survey

We previously established seasonal baseline rates of acute, febrile respiratory illness using supplemental questions on the Behavior Risk Factor Surveillance System (BRFSS) for non-institutionalized adults over age 18 years. At pandemic stages 2-6, we will use these questions to conduct systematic surveys in order to determine the frequency and age-stratified rates of febrile respiratory illness in the state.

Assessment of Suspect Novel Influenza Cases For Physicians & Hospitals



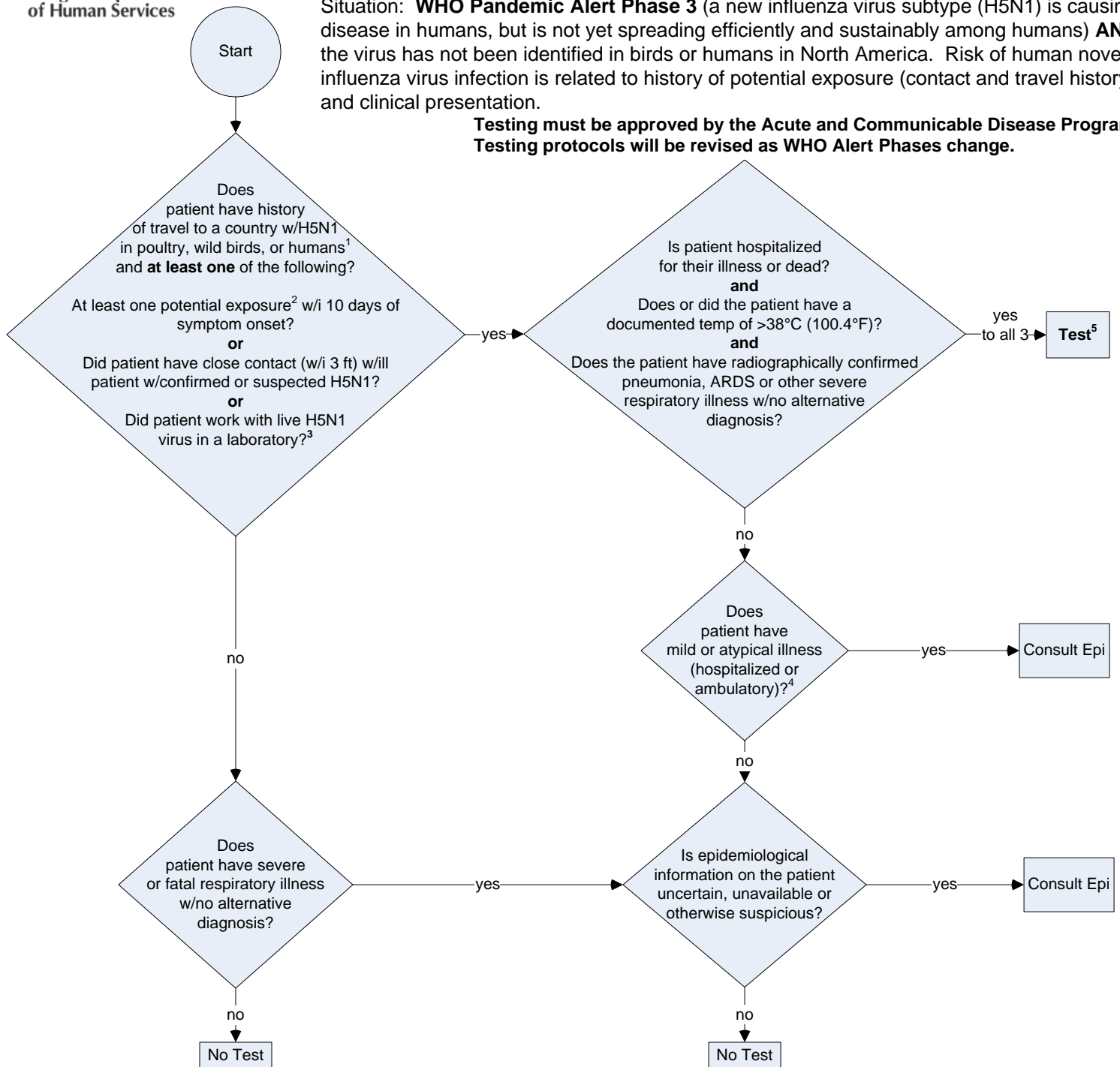
OREGON LOCAL HEALTH DEPARTMENTS

Baker	541/523-8211	Harney	541/573-2271	Morrow	541/676-5421
Benton	541/766-6835	Hood River	541/386-1115	Multnomah	503/988-3406
Clackamas	503/655-8430	Jackson	541/774-8200	Polk	503/623-8175
Clatsop	503/325-8500	Jefferson	541/475-4456	Sherman	541/506-2600
Columbia	503/397-4651	Josephine	541/474-5325	Tillamook	503/842-3900
Coos	541/756-2020	Klamath	541/882-8846	Umatilla	541/278-5432
Crook	541/447-5165	Lake	541/947-6045	Union	541/962-8801
Curry	541/247-3300	Lane	541/682-4013	Wallowa	541/426-4848
Deschutes	541/322-7400	Lincoln	541/265-4112	Wasco	541/506-2600
Douglas	541/440-3500	Linn	541/967-3888	Washington	503/846-8881
Gilliam	541/384-2061	Malheur	541/889-7279	Wheeler	541/763-2725
Grant	541/575-0429	Marion	503/588-5357	Yamhill	503/434-7525

OREGON STATE PUBLIC HEALTH DIVISION ASSESSMENT OF SUSPECTED CASES OF NOVEL INFLUENZA

Situation: **WHO Pandemic Alert Phase 3** (a new influenza virus subtype (H5N1) is causing disease in humans, but is not yet spreading efficiently and sustainably among humans) **AND** the virus has not been identified in birds or humans in North America. Risk of human novel influenza virus infection is related to history of potential exposure (contact and travel history) and clinical presentation.

**Testing must be approved by the Acute and Communicable Disease Program.
Testing protocols will be revised as WHO Alert Phases change.**



1 List of countries where poultry are currently affected with H5N1: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm
Map of areas with both human and animal outbreaks of H5N1: http://europa.eu.int/comm/health/ph_threats/com/Influenza/ai_recent_en.htm

2 Examples of potential exposure would be: Direct contact sick/dead poultry; Direct contact w/surface contaminated w/poultry feces; Consumption of raw or undercooked poultry/product w/suspected or confirmed H5N1; Close contact (w/i 3 ft) of person hospitalized or died due to severe unexplained respiratory disease.

3 Other exposures that warrant testing include cases who are laboratory workers with potential exposure to influenza A (e.g., doing viral culture), cases with history of close contact with a proven or suspected case of H5N1.

4 For example, a patient with respiratory illness and fever who does not require hospitalization, or a patient with significant neurologic or gastrointestinal symptoms in the absence of respiratory disease.

5 Send specimens to Oregon State Public Health Laboratory (OSPHL) for RT-PCR testing. Contact OSPHL at 503-229-5682 for recommendations for sample collection and shipping.



VIROLOGY/IMMUNOLOGY REQUEST

Oregon State Public Health Laboratory
PO Box 275 - Portland, OR 97207-0275
Information: 503-229-5882

OSPHL Use Only - Please Do Not Write In Shaded Area

PATIENT INFORMATION

Patient Name (Last, First, MI) or Unique Identifier

County of Residence

Date of Collection

Female Male

Date of Birth

Patient ID Number

Health Plan Name

Medicaid Number

Social Security Number (If Medicaid eligible)

ICD-9 Code

Referring Physician's Medicaid Provider Number

SUBMITTER INFORMATION

Submitter Code

Return Results To: (Must provide complete address)

Authorized Ordering Individual (Physician/Clinician)

Submitter Phone Number

Extension

TESTS REQUESTED

HEPATITIS

- Hepatitis A Screen Only (Anti-HAV IgM)
- Hepatitis A Total Antibody (Anti-HAV Total)
- Acute Symptoms Present (Anti-HAV IgM, HBsAg, Anti-HBc)
- Carrier Status Assessment (HBsAg, Anti-HBc IgM)
- Hepatitis B Contact (HBsAg, Anti-HBc)
- Prevacine Screen (Anti-HBc)
- Postvacine Check (Anti-HBs)
- Infant of HBsAg+ Mother (HBsAg, Anti-HBs)
- Refugee/Immigrant Screen (HBsAg)
- Hepatitis C Antibody (screen only)
- Other (Specify) _____
- Additional Information _____

SYPHILIS

- Routine Screen
- Prenatal - Trimester 1 2 3
- Diagnosis
- Premarital - State _____
- Treatment Check
- FTA-ABS (DS)
- VDRL (Spinal Fluid)

RUBELLA IMMUNE STATUS

- Prenatal - Trimester 1 2 3
- Premarital - State _____

PRENATAL HEPATITIS SCREENING For Local Health Departments Only

Prenatal - Trimester 1 2 3
If PREVIOUSLY POSITIVE for HBsAg -
When? (MMYY) _____
Other Tests Requested: Rubella Syphilis

MISCELLANEOUS SEROLOGIES

- SINGLE SPECIMEN
- ACUTE
- CONVALESCENT
- Brucellosis
- Hantavirus (with prior approval only)
- Leptospirosis
- Lyme Disease
- Mumps
- Parvovirus
- Polioviruses
- Rickettsial Battery (RMSF, Murine typhus, Q Fever)
- Rubella IgG (Immune Status)
- Rubeola
- Tularemia
- Varicella IgG (Immune Status)
- West Nile Virus (requires additional form)
- Other _____
- CDC Sendout for _____
(Requires Completed CDC form 50-34)

DATE OF ONSET

VIRUS ISOLATION

- Rule-Out Influenza Culture
- Virus Identification
- Virus Isolation _____

X Other **Novel Influenza by PCR**

Source

Date of Onset

Clinical Diagnosis

Specific Agent(s) Suspected

Comments:

Symptoms/Syndromes (check those applicable) Type of Specimen: (check one)

- | | |
|---|--|
| <input type="checkbox"/> Cardiovascular | <input type="checkbox"/> Cerebrospinal Fluid |
| <input type="checkbox"/> Central Nervous System | <input type="checkbox"/> Lesion Swab |
| <input type="checkbox"/> Congenital/Neonatal | <input type="checkbox"/> Stool |
| <input type="checkbox"/> Gastrointestinal | <input type="checkbox"/> Throat Washing/Swab |
| <input type="checkbox"/> Rash | <input type="checkbox"/> Tissue |
| <input type="checkbox"/> Respiratory | <input type="checkbox"/> Urine |
| <input type="checkbox"/> Other _____ | <input type="checkbox"/> Other _____ |

NOROVIRUS

- Outbreak Associated EPI Outbreak # _____
- Not Outbreak Associated

COMMENTS: