

Section 6: Influenza - Variant / Novel

BASIC EPIDEMIOLOGY

Infectious Agent

Variant or novel influenza is caused by an influenza virus that is not known to circulate in humans. Some animals (avian and swine populations) are considered higher risk for transmitting a variant influenza strain to humans.

Transmission

The transmission route of variant influenza viruses is likely to be similar to seasonal influenza which is primarily by droplet spread. Transmission may also occur by direct or indirect contact with oral secretions or fecal material from infected animals

Incubation Period

The incubation period is likely to be similar to seasonal influenza with an incubation period of 1 to 4 days.

Communicability

The communicability of variant influenza viruses is unknown and strain specific. It may range from low communicability to high communicability depending on how well adapted the strain is to humans. Susceptibility is considered to be universal since by definition a variant influenza strain is one that is not known to circulate in humans.

Clinical Illness

Symptoms are likely to be similar to seasonal influenza with high fever, chills, muscle aches, headache and cough. Many variant influenza infections have had increased incidence of gastrointestinal symptoms such as vomiting and diarrhea as well.

Severity

The severity of illness is unknown and may vary from mild to severe depending on the specific strain and characteristics of the population.

DEFINITIONS

Clinical Case Definition

An illness compatible with influenza virus infection such as fever >100 degrees Fahrenheit, with cough and/or sore throat

Laboratory Confirmation

Identification of an influenza A virus subtype or strain that is different from currently circulating human influenza H1 and H3 strains as confirmed by CDC's influenza laboratory, by public health laboratories using CDC-approved protocols for that specific strain, or by labs using FDA-approved test for specific strain.

- Novel subtypes include, but are not limited to, H2, H5, H7, and H9 subtypes.

- Influenza H1 and H3 subtypes originating from a non-human species or from genetic reassortment between animal and human viruses are also novel / variant subtypes or strains.
- Suspected novel / variant subtypes and strains will be detected with methods available for detection of currently circulating human influenza viruses at public health laboratories (e.g., rRT-PCR).
- Initial confirmation that a specific influenza A virus represents a novel / variant virus will be performed by CDC's influenza laboratory.

Case Classifications

- **Confirmed:** A case of human infection with a laboratory confirmed novel influenza A virus
- **Probable:** A case meeting the clinical criteria and epidemiologically linked to a confirmed case, but for whom no confirmatory laboratory testing for influenza virus infection has been performed or test results are inconclusive for a novel influenza A virus infection
- **Suspect:** A case meeting the clinical criteria in which influenza A has been detected but is pending laboratory confirmation
 - In addition, a history of either close contact with ill animals known to transmit novel subtypes of influenza A (such as wild birds or poultry, swine or other mammals) OR
 - travel within 14 days of onset, to any country where a novel influenza A virus (such as highly pathogenic avian influenza A H5N1) has been recently identified in animals or people, is required

Criteria for epidemiologic linkage

- The patient has had recent contact with one or more persons who either have or had the disease and
- Transmission of the agent by the usual modes of transmission is plausible.
- A case may be considered epidemiologically linked to a laboratory confirmed case if at least one case in the chain of transmission is laboratory confirmed.

CASE INVESTIGATION

Case Investigation

Local and regional health departments should investigate all reports of suspected variant influenza. Health care providers may report suspected cases of variant influenza. Only the state laboratory or the CDC can identify a confirmed or probable case of variant influenza.

Suspect Case Investigation Checklist

- Determine why the healthcare provider suspects variant influenza.
- Follow the current influenza season's laboratory surveillance protocol to give instructions for the collection and submission of specimens.
- Complete the general influenza investigation form and fax it to DSHS.
- Suspect cases do not need to be entered into NBS unless specifically requested.

Confirmed / Probable Case Investigation Checklist

- Confirm that the laboratory results meet the case definition.
- Review medical records or speak to an infection preventionist or physician to verify underlying health conditions and course of illness.
- Interview case (or surrogate) to identify travel history, animal contact and other risk factors.
- Enhance surveillance for ILI
 - Ensure that all regular influenza reporters are reporting ILI data to public health (if the case occurs outside of flu reporting season, contact regular flu reporters and request that they to report ILI for at least 4 weeks).
 - Contact local hospitals and large clinics to see if any increases in ILI activity have occurred. Follow up with hospitals and large clinics weekly for at least 4 weeks.
 - Contact local schools to see if any increases in ILI activity have occurred. Follow up with schools weekly for at least four weeks.
- Complete the variant influenza investigation form and fax it to DSHS.
- All confirmed and probable case investigations must be entered and submitted for notification in the NEDSS Base System (NBS). Please refer to the *NBS Data Entry Guidelines* for disease specific entry rules.

Control Measures

- Provide education on influenza to contacts of the case as needed.
- Recommend that anyone with risk factors experiencing symptoms or anyone with severe illness be evaluated by a healthcare provider.
- Remind local healthcare providers to consider influenza and report suspected cases.
- Antivirals may be used to treat and prevent influenza according to CDC guidance.

Exclusion

Children are required to be excluded from school/daycare for at least 24 hours after fever has subsided without the use of fever suppressing medications. It is recommended that adults not return to work for at least 24 hours after fever has subsided without the use of fever suppressing medications. In the event of a pandemic or unusually severe presentation the exclusion period may be extended.

MANAGING SPECIAL SITUATIONS

Animal (swine or avian) exposure identified

If the influenza case is determined to be a variant strain and if exposure to domestic or wild animals is identified during the investigation, DSHS should be notified immediately so that partners in Zoonosis Control, the Texas Animal Health Commission (TAHC) and/or Texas Parks and Wildlife (TPW) can be included in the investigation.

Extensive efforts should be made to identify all animal contacts up to onset of illness. Zoonosis Control, TAHC or TPW will conduct trace backs and investigations on animal contacts.

Multiple cases of variant influenza identified

If more than one case of variant influenza is identified enhanced surveillance will be expanded.

The local/regional health department should:

- Alert all acute care healthcare providers in the area to be cognizant of possible cases and encourage reporting of suspected cases.
- Continue to work with existing influenza surveillance partners and hospitals/large clinics in the area to track influenza-like illness and identify new cases.
- Investigate common exposures among the cases and work with any identified facilities or entities.
 - Recommend control measures based on the type of entity or setting.
 - Recommendations should be jointly developed with TAHC / TPW if animals are present.
- Encourage anyone with symptoms be evaluated by a healthcare provider.
- See the Texas Influenza Surveillance Handbook for more information on control measures and outbreak response.

Pandemic

During a pandemic, DSHS will determine what information should be collected on individual cases of pandemic influenza or if only aggregate data will be collected. It is anticipated that a complete variant influenza investigation will be performed on initial cases. As the case count increases, a general influenza investigation form should be completed for all or a subset of cases.

Once a pandemic influenza strain becomes widespread in Texas it is likely that individual investigations will no longer be performed for all cases and only aggregate reporting of cases or full investigation of a subset of cases will be needed. Individual investigations may continue for a subset of cases such as influenza-associated deaths among pregnant/postpartum women or other group(s) of interest.

Investigation and reporting guidance specific to the pandemic will be shared by DSHS.

REPORTING AND DATA ENTRY REQUIREMENTS

Provider, School & Child-Care Facilities, and General Public Reporting Requirements

Confirmed and suspected cases of variant influenza should be reported within 1 week of suspicion to the local or regional health department or the Texas Department of State Health Services, Infectious Disease Control Unit at (800) 252-8239 or (512) 512-7676. Healthcare providers are encouraged to report suspected cases of influenza with a recent history of international travel and/or with recent contact with swine or poultry.

Local and Regional Reporting and Follow-up Responsibilities

Local and regional health departments should fax (or mail) a completed investigation form and submit an NBS notification on all confirmed and probable cases to DSHS within 1 week of receiving lab confirmation of variant influenza. Please refer to the *NBS Data Entry Guidelines* for disease specific entry rules. Investigation forms may be faxed to 512-776-7616 or mailed to

Infectious Disease Control Unit,
Texas Department of State Health Services
Mail Code: 1960
PO Box 149347
Austin, TX 78714-9347

LABORATORY PROCEDURES

Specimens associated with suspected variant influenza cases should be submitted to the DSHS laboratory following the protocol for seasonal influenza surveillance. The protocol is available by request from the DSHS Emerging and Acute Infectious Disease Branch (EAIDB) or from the regional influenza surveillance coordinator.

Specimen Collection

- Follow the specimen collection instructions in the current influenza season's laboratory surveillance protocol.

Submission Form

- Use the DSHS Laboratory G2-A Specimen Submission Form for specimen submission. On the form, under the Virology section, check the box for **influenza surveillance**. In the blank space at the bottom of the Virology section near other, write "suspect variant influenza".

Section 10. VIROLOGY

Electron microscopy

Influenza surveillance
Vaccine received: Yes No

Reference culture (Virus ID on isolate)
Suspected: _____
Submitted on: _____

Virus isolation (comprehensive)
Suspected if any: _____

Suspect variant influenza

- Make sure the patient's name and date of birth on the form exactly match what is written on the transport tubes.
- Make sure to fill in the date and time of collection in addition to the patient demographics on the form.
- In section 2 under the heading for risk, make sure to clearly indicate why a variant influenza is suspected. Examples include:
 - Travel to _____ {insert name of country}
 - Contact with swine
 - Contact with poultry

Section 2. PATIENT INFORMATION -- (** REQUIRED)					
NOTE: Patient name on specimen is REQUIRED & MUST match name on this form & Medicare/Medicaid card.					
Last Name **		First Name **		MI	
Address **			Telephone Number		
City **		State **	Zip Code **	Country of Origin / Bi-National ID #	
DOB (mm/dd/yyyy) **		Sex **	SSN	Pregnant? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
Race: <input type="checkbox"/> White <input type="checkbox"/> American Indian / Native Alaskan <input type="checkbox"/> Native Hawaiian / Pacific Islander		Black or African American <input type="checkbox"/> Asian <input type="checkbox"/> Other		Ethnicity: <input type="checkbox"/> Hispanic <input type="checkbox"/> Non-Hispanic <input type="checkbox"/> Unknown	
Date of Collection ** (REQUIRED)		Time of Collection <input type="checkbox"/> AM <input type="checkbox"/> PM	Collected By		
Medical Record #	Alien # / CUI / CDC ID		Previous DSHS Specimen Lab Number		
ICD Diagnosis Code ** (1)		ICD Diagnosis Code ** (2)		ICD Diagnosis Code ** (3)	
Date of Onset	Diagnosis / Symptoms			Risk <i>Swine contact</i>	
<input type="checkbox"/> Inpatient	<input type="checkbox"/> Outpatient	<input type="checkbox"/> Outbreak association:		<input type="checkbox"/> Surveillance	

- Follow the submission form instructions found in the current influenza season's laboratory surveillance protocol.
- Transport temperature: Store the specimen at 2°-8°C if the specimen will be received at the laboratory within 72 hours of collection; ship the specimen on cold packs or wet ice (double bagged). Otherwise, the specimen must be stored frozen (-70°C) and shipped on dry ice.
- Ship specimens via overnight delivery.
- DO NOT mail specimens on a Friday or the day before a holiday unless special arrangements have been made in advance with the DSHS Laboratory.
- Ship specimens to:

Laboratory Services Section, MC-1947
Texas Department of State Health Services
Attn. Walter Douglass (512) 776-7569
1100 West 49th Street
Austin, TX 78756-3199

Common Causes for Rejection:

- Discrepancy between name on specimen tube and name on form
- Not shipped in viral transport media or media is expired
- Specimen is received more than 72 hours after collection (if refrigerated)
- Specimen is received at ambient temperature