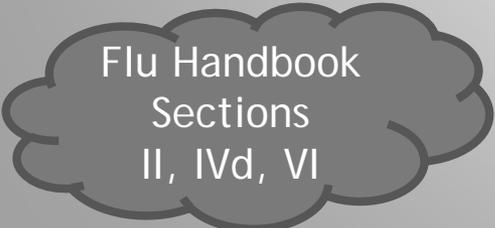


LABORATORY SPECIMEN COLLECTION, SUBMISSION, AND TESTING

Lesley Brannan, MPH

Robert Russin

Emerging and Acute Infectious Disease Branch



Flu Handbook
Sections
II, IVd, VI

INFLUENZA SURVEILLANCE ACTIVITIES - OUTLINE

Preparation

Surveillance

Recruit
submitters



Assess &
order
supplies

Collect
specimens



Ship
specimens



Test
specimens



I would like for some providers in my area to submit specimens for flu surveillance for the upcoming season.

How do I get started?

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RECRUITING THE “WHO”

○ May anyone submit specimens?

- Recruited providers must see patients with ILI/flu
- You may recruit:
 - Providers, clinics, hospital EDs, schools, etc.
 - Providers with whom you work well
- Ideally, your jurisdiction’s flu specimen surveillance component should also...
 - Represent the community, demographically & geographically
 - Represent the spectrum of illness
 - Include providers who report ILI data to HD or ILINet
- If possible, please avoid recruiting only:
 - Laboratories/hospitals that pre-screen their specimens for flu before sending them to a Texas public health laboratory for testing

To meet APHL’s Right Size Project sampling objectives

RECRUITING THE “WHEN” AND “WHAT”

- ◎ **When should I recruit providers?**
 - No later than August
 - Potentially, year-round

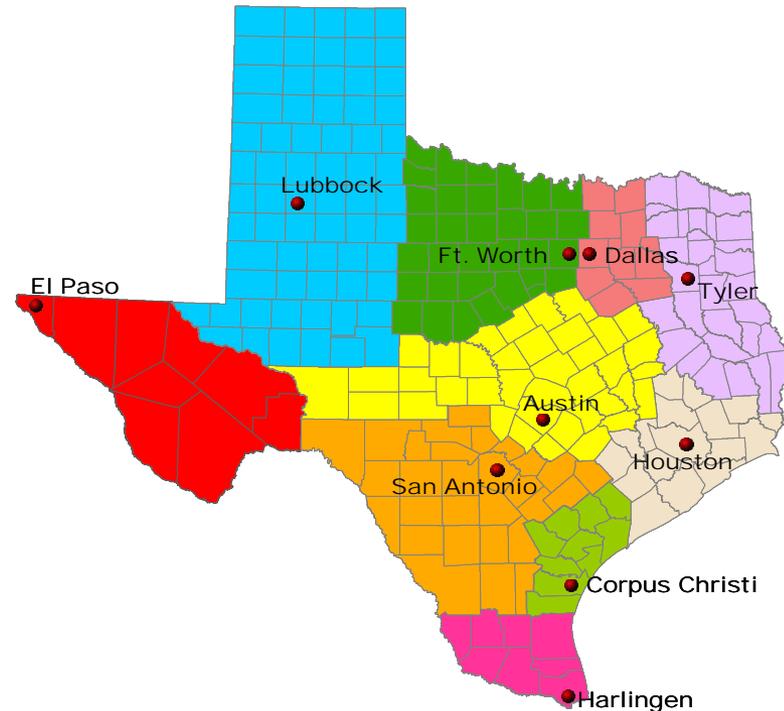
- ◎ **What will the providers be doing?**
 - Identifying patients with ILI/flu
 - Collecting specimens from these patients
 - Submitting specimens to a Texas public health laboratory for flu testing

RECRUITING THE “WHY”

- Why should I recruit providers to submit flu surveillance specimens?
 - To meet Texas flu surveillance goals:
 - Determine when and where influenza viruses are circulating
 - Determine if circulating influenza viruses match the vaccine strains
 - Detect changes in the influenza viruses
 - Because CDC needs real viruses from real patients to develop the yearly flu vaccine.

RECRUITING OTHER CONSIDERATIONS

- Important questions to consider / ask:
 - To which lab(s) will my providers submit specimens?
 - What is the weekly testing capacity of those labs?
 - Has the provider ever submitted specimens to those labs?



FIRST-TIME SUBMITTERS

- Facilitate communication with Lab Reporting
 - For DSHS Austin lab, have the provider call Lab Reporting to initiate the process: 512-776-7578
 - Initial account set-up
 - Issuing a G-2V Laboratory Submission Form
- Provide laboratory procedures
 - For Texas public health laboratories, use the DSHS Influenza Laboratory Surveillance Protocol
 - For a copy, contact the Influenza Surveillance Team (FluTexas@dshs.state.tx.us)

RETURNING SUBMITTERS (INCLUDING HEALTH DEPTS)

- ◉ If necessary, facilitate communication with Lab Reporting
 - For DSHS Austin lab, have the provider call Lab Reporting to initiate the process: 512-776-7578
 - Updating contact information
 - Re-issuing a G-2V Laboratory Submission Form
- ◉ Provide laboratory procedures
 - For Texas public health laboratories, use the DSHS Influenza Laboratory Surveillance Protocol
 - For a copy, contact the Austin Flu Team (FluTexas@dshs.state.tx.us)

MORE ON SUBMISSION FORMS FOR HEALTH DEPARTMENTS

- EAIDB requested copies of common DSHS Austin lab submission forms for all LHDs, RHDs, and LRNs who are signed up with the lab
 - G-2A (serology)
 - G-2B (bacteriology and parasitology)
 - G-2V (virology)
 - G-23 (food samples)
 - G-27A (emergency preparedness)
- Electronic copies were distributed to RHDs (RHD and LHD forms) in July 2014
- Purpose: To ease specimen submission process especially during outbreaks
- EAIDB will check for form updates regularly

My submitters are ready to go, and flu season begins soon. What else do I need to do?

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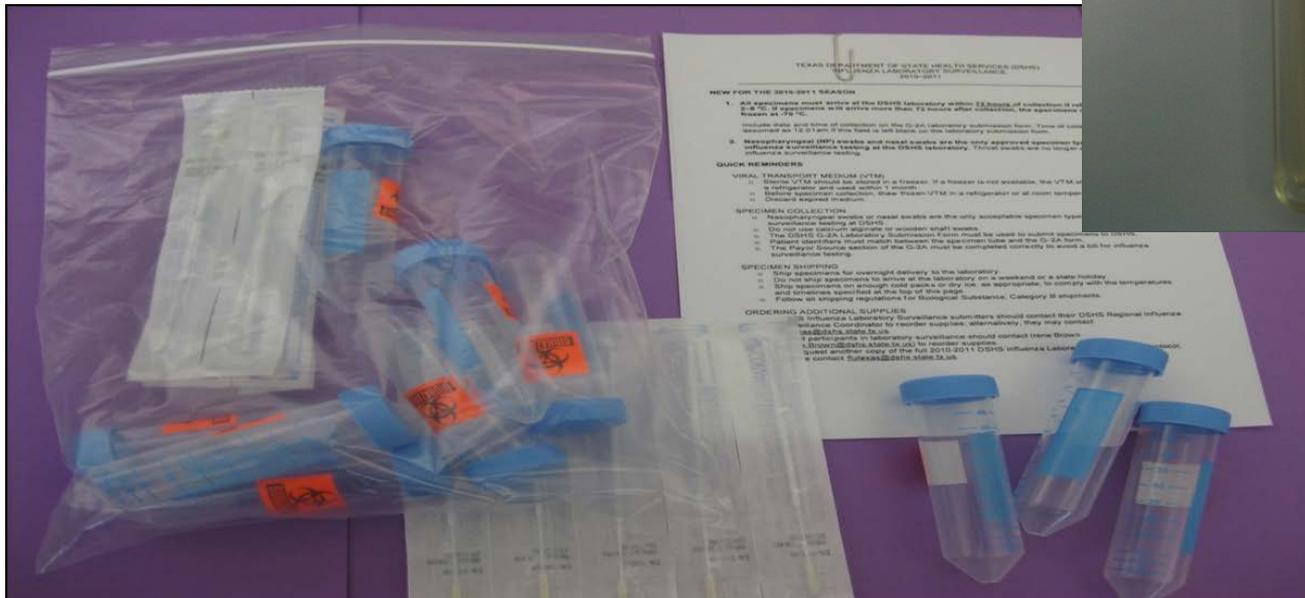


AVAILABLE SUPPLIES

- Supplies shipped out by Container Preparation in the DSHS Austin Lab:
 - DSHS influenza transport medium (“VTM”)
 - Commercial media may be substituted for DSHS VTM
 - One NP swab per VTM tube
 - Secondary shipping containers (conical tubes)
 - Influenza specimen collection protocol

- If requested:
 - Shipping boxes (“cold boxes”)
 - Two cold/freezer packs per box
 - Fed-Ex waybills for pre-paid shipping (for specimens submitted to the Austin lab only)
 - 1 per shipping box, or can be ordered separately

AVAILABLE SUPPLIES



VTM'S SHELF LIFE

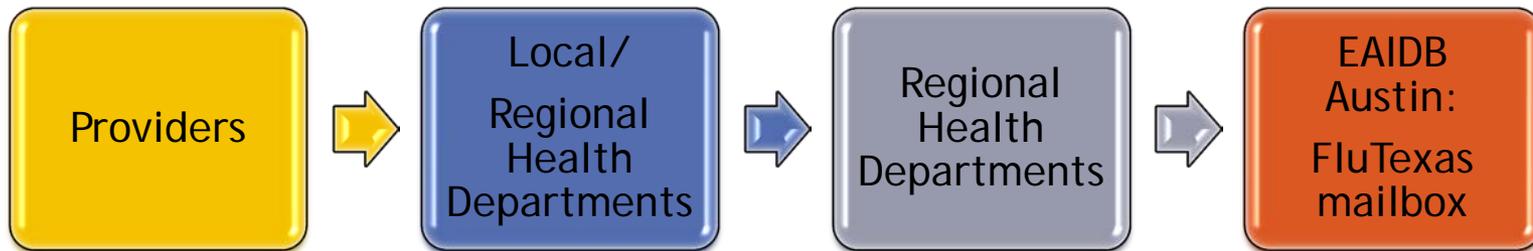
- ◉ DSHS VTM lasts longest in the freezer
- ◉ Only keep refrigerated VTM for about a month
 - Limiting factor: antibiotics in the medium
- ◉ Reorder as necessary throughout the season
- ◉ Plan ahead

ASSESSING SUPPLY LEVELS

- ◉ Order VTM for:
 - Regional health department & sub-offices
 - Local health departments
 - Providers
 - LRN or city laboratories

ORDERING SUPPLIES (NON-LRN ORDERS)

All orders (except those for LRNs) follow this process
- initial & replenishment



Regional health departments should
send orders to:

flutexas@dshs.state.tx.us

ORDERING SUPPLIES (LRNS)

- ◉ For any LRN laboratory
- ◉ For any submitter who will send specimens to an LRN
 - Submitters place orders with their LRNs
 - LRNs forward submitter orders to Vanessa Telles
- ◉ Send all orders to Vanessa Telles
 - Vanessa.Telles@dshs.state.tx.us

ORDERING SUPPLIES ORDER FORM

- ◉ Excel worksheet
- ◉ Sent to Regional Health Departments in August
- ◉ Available by request at flutexas@dshs.state.tx.us

Information for site that will receive the VTM						Information on person ordering VTM (if different from person receiving VTM)			VTM Order--Initial Shipment				
Facility/Culture Surveillance Site Name	Shipping Address	City	Zip	Name of person receiving order	Phone number of person receiving order	E-mail for Person receiving order	Name of person placing order	Phone Number of person placing order	E-mail of person placing order	Number of VTM tubes requested	If this order is for multiple sites, how many sites?	Large or small volume site? (small is <8 specimens submitted to lab weekly; large is >8 specimens)	Number of specimen shipping boxes (aka cold boxes) requested
Health Clinic A	111 Any Street	Austin	78758	Mary Smith	512-299-1111	mary.smith@healthclinic.com	Jake Doe	512-678-9999	jake.doe@dshs.state.tx.us	20	n/a	small	2

TIMELINE: ORDERING SUPPLIES

August 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22†	23
24	25	26	27	28	29‡	30
31						

†Suggested deadline for LHD and provider orders to RHDs

‡Deadline for Regional HDs to send orders to DSHS Austin

WHAT IF I DON'T MAKE THE DEADLINE(S)?

- You can still order supplies, but they may arrive after the start of influenza season

WHEN WILL THE SUPPLIES BE SHIPPED?

September 2014						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15*	16	17	18	19	20
21	22*	23	24**	25	26	27
28 Flu season	29	30				

*Shipping day

**Backup shipping day

RECEIVING SUPPLIES

- ◉ Supplies are shipped to the site that submitted the original order
- ◉ Ensure that someone can take delivery the next day and has been told about that responsibility

HOW THE SUPPLIES WILL ARRIVE

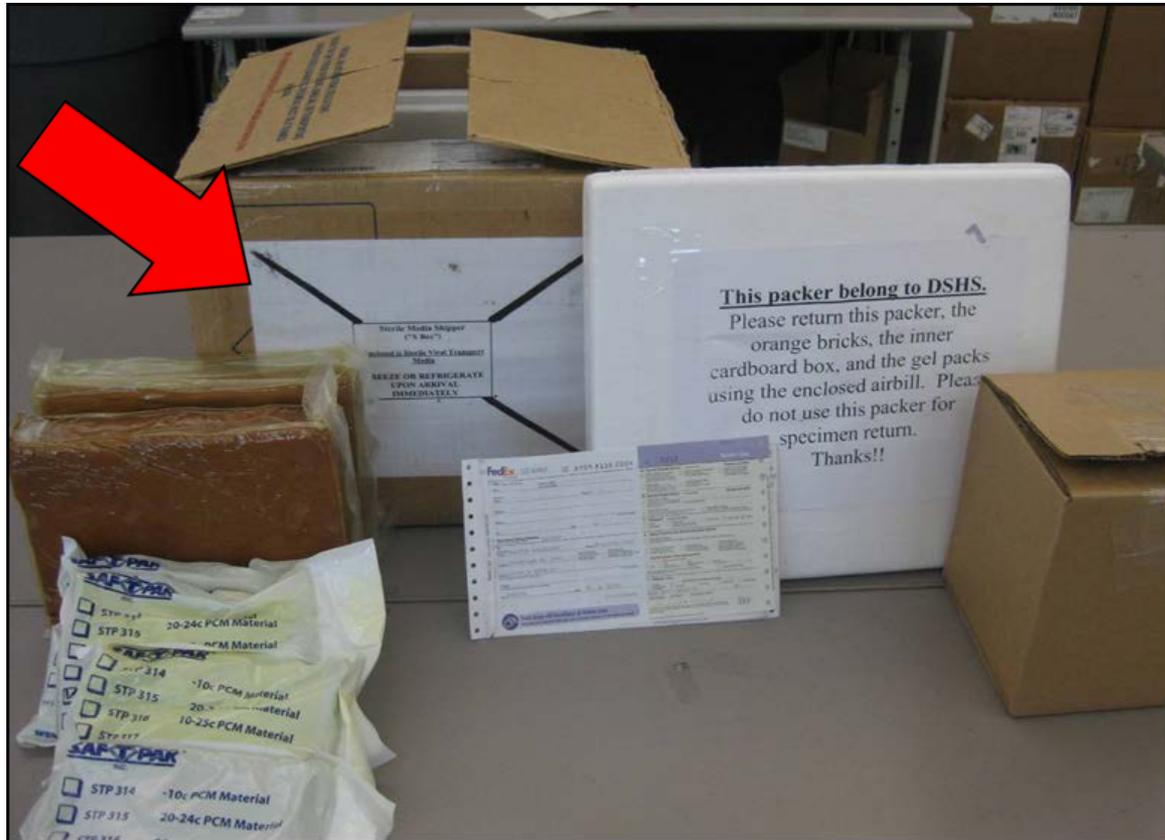


LOOK FOR THE "X - BOX"

"X-BOX" Labels indicate that this package contains Sterile Viral Transport Media

Refrigerate DSHS VTM tubes upon arrival!

MORE ON THE STERILE MEDIA SHIPPER ("X BOX")



From this large box, you should only keep the VTM.

Return all other contents to DSHS using the enclosed Fed-Ex waybill for return shipping.

RECEIVING SUPPLIES: KEY STEPS

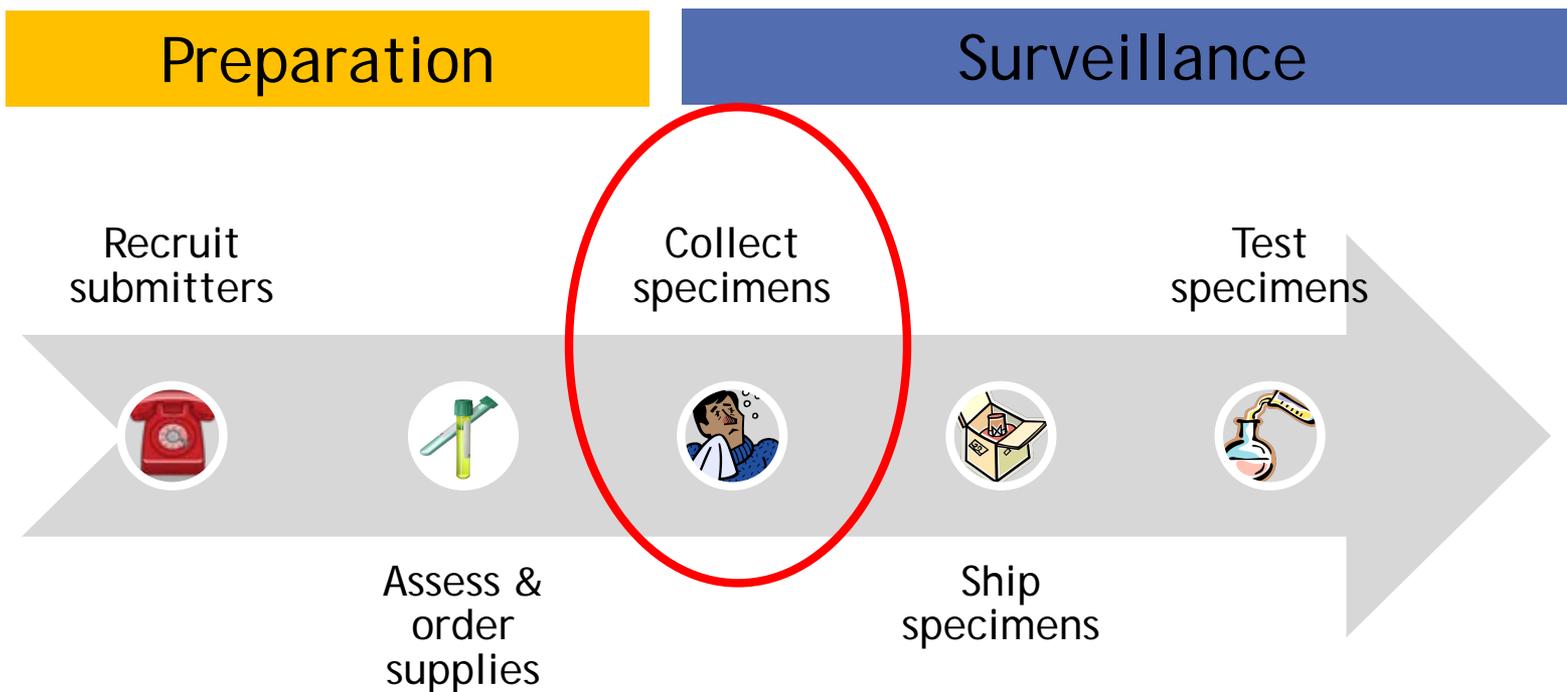
- Unpack the “X Box” immediately; refrigerate or freeze DSHS VTM
 - For commercial VTM, follow manufacturer’s instructions
- Unpack and inventory other supplies
- Return the “X Box” and its contents to DSHS Austin
- If necessary, distribute supplies to other surveillance sites

TROUBLE WITH SUPPLIES?

- Contact flutexas@dshs.state.tx.us and let us know how we can help
 - Broken tubes
 - Missing supplies
 - Leaking cold packs
 - General questions

I have ordered supplies for my health department and the participating providers in my area. What's next?

INFLUENZA SURVEILLANCE ACTIVITIES - OUTLINE



SPECIMEN COLLECTION: GENERAL CONSIDERATIONS

- In general, target patients with:
 - Symptoms of ILI/flu and no other illness explanation
 - Typical symptoms of influenza infection generally include fever (typically > 100 °F), malaise, myalgia (muscle aches), cough, rhinorrhea (runny nose), sore throat, chills, and/or headache.
 - Recent illness onset (\leq 4 days)

SPECIMEN COLLECTION: SPECIMENS OF INTEREST

- We're always interested in specimens from...
 - Persons with ILI and recent international travel
 - Persons with flu symptoms who were vaccinated
 - Persons with severe or unusual presentations
 - Persons who are not responding to antivirals
 - Persons with ILI/flu outside of normal flu season
 - Persons with flu and recent avian/swine contact
 - ILI clusters and outbreaks
 - Ideal: 5-10 specimens per outbreak

SPECIMEN COLLECTION: TIME CONSIDERATIONS

- ◉ In general, collect specimens Monday through Thursday only
 - Exceptions:
 - Same day courier or hand delivery to laboratory
 - Able to freeze and ship on dry ice

HOW MANY SPECIMENS CAN EACH PROVIDER SUBMIT?

○ Considerations:

- How many providers in your area are submitting specimens this season?
- How many specimens can the lab test each week?

○ DSHS Austin Lab and LRNs:

- Per Region
 - Refer to Regional Right Size goals
- Per Provider
 - Limit: Generally not more than 5 per week unless special arrangements have been made

○ Communicate with your laboratory!



Current as of 8/8/2014

REGIONAL RIGHT SIZE GOALS

2014-2015

Jurisdiction	Weekly specimen submission to a Texas PHL required to meet Right Size goals for influenza
Region 1	4
Region 2/3	40
Region 4/5N	8
Region 6/5S	36
Region 7	17
Region 8	14
Region 9/10	8
Region 11	12
Texas	138*

*Overall weekly Texas specimen submission required to maintain situational awareness for influenza at the state level with a 95% confidence level and 5% margin of error; Texas requirement does not equal sum of regional requirements due to rounding

Note: Regional goals are minimum specimen submission goals per week and are based on population. All submissions to a Texas PHL from LHD or RHD providers in each Region count toward these goals.

SPECIMEN COLLECTION: ACCEPTABLE SPECIMEN TYPES (PCR)

- ◉ Preferred: Nasopharyngeal (NP) swab
- ◉ Also okay:
 - Upper respiratory specimens
 - Throat swabs
 - Nasal swabs/aspirates/washes
 - Lower respiratory specimens
 - Bronchial washes
 - Tracheal aspirates
 - Bronchoalveolar lavages

SPECIMEN COLLECTION: ASSEMBLE SUPPLIES

◉ Supply list:

- Viral transport medium (VTM)
- Swab or other collection materials
- PPE (gloves, etc.)
- Specimen submission form
- Patient

◉ Steps:

- Gather supplies
- Remove VTM from refrigerator or freezer and let it reach room temperature
- Fill out the specimen submission form

SPECIMEN COLLECTION: COMPLETE THE SUBMISSION FORM

 TEXAS Department of State Health Services Specimen Acquisition: (512) 776-7598		G-2V Virology Specimen Submission Form (SEP 2013) CAFE 2024401 CLIA #45D0660644 Laboratory Services Section, MC-1947 P. O. Box 149347, Austin, Texas 78714-9347 Courier: 1100 W. 49th Street, Austin, Texas 78756 (888) 963-7111 x7318 or (512) 776-7318 http://www.dshs.state.tx.us/lab	
Section 1. SUBMITTER INFORMATION -- (** REQUIRED) Submitter/PI Number: _____ Submitter Name: _____ NPI Number: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Phone: _____ Contact: _____ Fax: _____ Clinic Code: _____		Section 5. ORDERING PHYSICIAN INFORMATION -- (** REQUIRED) Ordering Physician's NPI Number: _____ Ordering Physician's Name: _____ Section 6. PAYOR SOURCE -- (REQUIRED) 1. Reflex testing will be performed when necessary and the appropriate party will be billed. 2. If the patient does not meet program eligibility requirements for the test requested and no third party payor will cover the testing, the submitter will be billed. 3. Medicare generally does not pay for screening tests-please refer to applicable Third party payor guidelines for instructions regarding covered tests, benefit limitations, medical necessity determinations and Advanced Beneficiary Notice (ABN) requirements. 4. If Medicaid or Medicare is indicated, the Medicaid/Medicare number is required. Please write it in the space provided below. 5. If private insurance is indicated, the required billing information below is designated with an asterisk (*). 6. Check only one box below to indicate whether we should bill the submitter, Medicaid, Medicare, private insurance, or DSHS Program. Medicaid/Medicare #: _____ <input type="checkbox"/> Medicaid (2) <input type="checkbox"/> Medicare (3) <input type="checkbox"/> Submitter (3) <input type="checkbox"/> Private Insurance (4) <input type="checkbox"/> BIDS (1720) <input type="checkbox"/> Refugee (7) <input type="checkbox"/> BT Grant (1917) <input type="checkbox"/> TB Elimination (1619) <input type="checkbox"/> ELC Grant (1677) <input type="checkbox"/> Title X (12) <input type="checkbox"/> HIV / STD (1628) <input type="checkbox"/> Title XX (13) <input type="checkbox"/> IDEAS (1620) <input type="checkbox"/> TX CLPPP (9) <input type="checkbox"/> Immunizations (1609) <input type="checkbox"/> Zoonosis (1620) <input type="checkbox"/> Other: _____	
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"/> Black or African American <input type="checkbox"/> Hispanic <input type="checkbox"/> American Indian / Native Alaskan <input type="checkbox"/> Asian <input type="checkbox"/> Non-Hispanic <input type="checkbox"/> Native Hawaiian / Pacific Islander <input type="checkbox"/> Other <input type="checkbox"/> Unknown 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: _____ <input type="checkbox"/> Inpatient <input type="checkbox"/> Outpatient <input type="checkbox"/> Outbreak association: _____ <input type="checkbox"/> Surveillance: _____ Section 3. SPECIMEN SOURCE OR TYPE <input type="checkbox"/> Abscess (site) _____ <input type="checkbox"/> Nasopharyngeal: <input type="checkbox"/> Wash <input type="checkbox"/> Swab <input type="checkbox"/> Aspirate <input type="checkbox"/> Blood _____ <input type="checkbox"/> Nasal Wash _____ <input type="checkbox"/> Bone marrow _____ <input type="checkbox"/> Oral fluid _____ <input type="checkbox"/> Throat swab _____ <input type="checkbox"/> Bronchial washings _____ <input type="checkbox"/> Rectal swab _____ <input type="checkbox"/> Tissue (site) _____ <input type="checkbox"/> Buccal swab _____ <input type="checkbox"/> Serum: _____ <input type="checkbox"/> Urethral _____ <input type="checkbox"/> CSF _____ <input type="checkbox"/> Acute date: _____/_____/_____ <input type="checkbox"/> Eye _____ <input type="checkbox"/> Conv. date: _____/_____/_____ <input type="checkbox"/> Feces/stool _____ <input type="checkbox"/> Sputum: Induced _____ <input type="checkbox"/> Wound (site) _____ <input type="checkbox"/> Lesion (site) _____ <input type="checkbox"/> Sputum: Natural _____ <input type="checkbox"/> Other: _____ <input type="checkbox"/> Lymph node (site) _____		Section 4. VIROLOGY <input type="checkbox"/> Electron Microscopy _____ <input type="checkbox"/> Mumps, real-time RT-PCR _____ <input type="checkbox"/> Culture: Reference (Virus ID) _____ <input type="checkbox"/> Viral isolation, clinical (Comprehensive cell culture) Virus suspected: _____ Submitted on (cell type): _____ <input type="checkbox"/> Influenza surveillance (Influenza real-time RT-PCR) _____ <input type="checkbox"/> Other: _____ Vaccine received: <input type="checkbox"/> Yes <input type="checkbox"/> No Date vaccine received: _____ Travel history (if known): _____ Animal contact (if known): _____ NOTES: All dates must be entered in mm/dd/yyyy format. * = Justification is required. § = Requires acute and convalescent specimens. ▲ = Document time & date specimens were INCUBATED or removed from FREEZER / REFRIGERATOR in the bottom box. @ = Provide patient history on reverse side of form to avoid delay of specimen processing. Please see the form's instructions for details on how to complete this form. Visit: http://www.dshs.state.tx.us/lab/	
FOR LABORATORY USE ONLY Indicate removal from: _____ DATE: _____ TIME: _____ <input type="checkbox"/> FREEZER <input type="checkbox"/> REFRIGERATOR <input type="checkbox"/> INCUBATOR Specimen Received: _____ <input type="checkbox"/> Room Temp. <input type="checkbox"/> Cold <input type="checkbox"/> Frozen			

- ⦿ Complete sections 1–6
- ⦿ Section 2 required (min)
 - Name, sex, DOB, address
 - Date and time of collection
- ⦿ Section 6: *****Call EAIDB or DSHS RHD for information on what box to check*****
- ⦿ Section 4: Check “Influenza surveillance {Influenza real-time RT-PCR}”, indicate patient vaccination status
- ⦿ Note: Check with LRNs for their submission forms/instructions

SPECIMEN COLLECTION: THE PROCESS

- ◉ Wash hands
- ◉ Put on appropriate PPE
- ◉ Ask the patient to look slightly upward
- ◉ Steady the patient's head with one hand under his chin
- ◉ Gently insert the dry swab through one nostril horizontally (**straight back not upwards**), along the floor of the nasal passage into the nasopharynx.
 - The distance from the nose to the ear gives an estimate of the distance the swab should be inserted.
 - If resistance is encountered during insertion, remove the swab and attempt insertion into the opposite nostril.
 - Rotate the swab 2 to 3 times and leave in place for up to 10 seconds.
- ◉ Remove the swab slowly
- ◉ Place the swab into VTM, breaking the swab shaft so that it fits completely into the tube.
- ◉ Label the VTM tube with the patient's first name, last name, and date of birth.

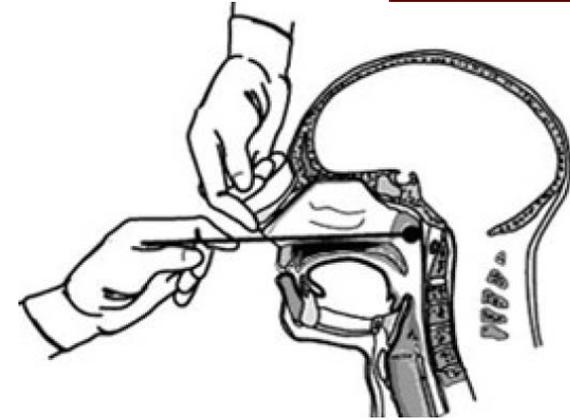


Image: CDC Manual for the Surveillance of
Vaccine-Preventable Diseases, 4th ed, 2008

SPECIMEN COLLECTION: STORAGE

- Immediately after collection, refrigerate or freeze specimen
- How do I choose?

Will arrive at lab
within 72 hours
of collection

Refrigerate
specimen

Will arrive at lab
more than 72
hours after
collection

Freeze
specimen

WAYS TO AVOID SPECIMEN REJECTION

- ⦿ Do not use expired medium
- ⦿ Use approved media
 - Use DSHS VTM or check the package insert!
- ⦿ Use synthetic swabs
 - No wooden shaft or calcium alginate
- ⦿ Collect an approved specimen type for flu
- ⦿ Complete the submission form
- ⦿ Specimen info needs to match submission form

I have collected my specimens and I'm ready to send them to the laboratory. How do I do that?

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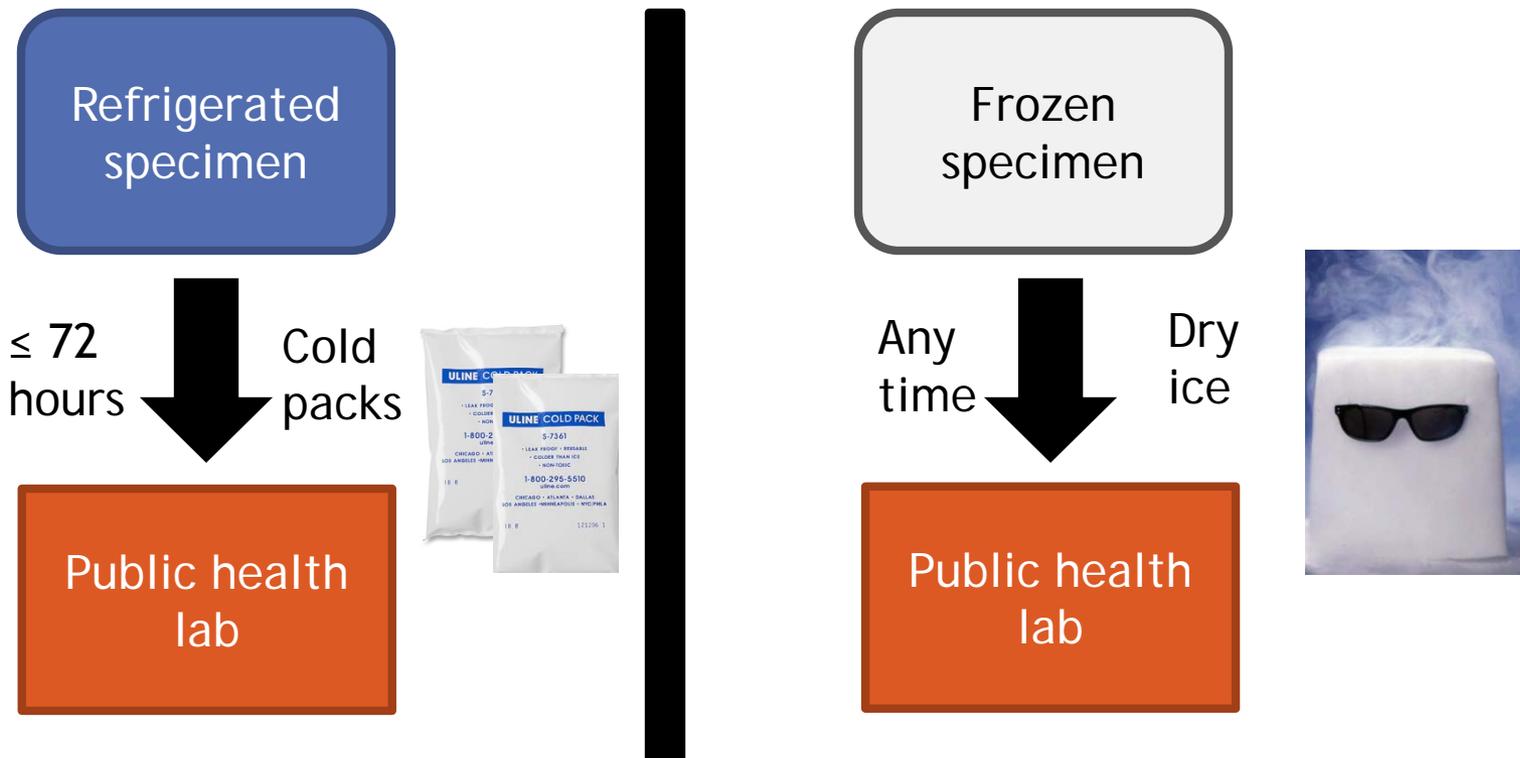


SHIPPING SPECIMENS: TIME CONSIDERATIONS

- Do not submit specimens to arrive on weekends or state holidays
 - Schedule:
<http://www.hr.sao.state.tx.us/compensation/holidays.html>
- Mail specimens no more than 24 hours after collection
- Always ship via overnight mail

SHIPPING SPECIMENS: SPECIMEN TEMPERATURES

- Specimens must arrive...
 - Within 72 hours of collection if refrigerated (no time restrictions if frozen)
 - In the same condition in which they started



SHIPPING SPECIMENS: SHIPPING MATERIALS

- Shipping box
- Freezer packs or dry ice
- Secondary container(s)
- Labels
 - Directional arrows label
 - UN 3373/Category B Biological Substances Label
 - Dry ice label (if needed)
- FedEx waybill
 - Submitter's contact info
 - Laboratory's contact info
- Any changes or substitutions are the shipper's responsibility



SHIPPING SPECIMENS: TRIPLE CONTAINMENT



Primary
container

Secondary
Container
(stuffed with
absorbent
material)

Tertiary
container

SHIPPING SPECIMENS: PACKAGING

- ◉ Put specimens into secondary containers, and put secondary containers in shipping box
 - Tighten all caps!
- ◉ Add enough “coolant” to maintain temperature
- ◉ Put the styrofoam lid on
- ◉ Place specimen submission form(s) on top of styrofoam lid
- ◉ Close and seal the cardboard box
- ◉ Apply labels/waybills
- ◉ Call courier for pickup

MORE WAYS TO AVOID SPECIMEN REJECTION

- ⦿ Package specimens correctly
 - Tighten cap
 - Use triple containment
 - Use correct packaging supplies
- ⦿ Order overnight delivery
- ⦿ Ensure arrival at laboratory no more than 72 hours after collection
- ⦿ Maintain the correct temperature throughout shipping
- ⦿ Include specimen submission forms

- ◎ I have shipped my specimens to the laboratory.
 - What routine testing will they do?
 - What other types of testing are possible?
 - When can I expect results?
 - How can I access those results?
 - How does public health use these test results/testing capabilities?

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Ship
specimens



Test
specimens



WHO TESTS THE SPECIMENS?

- ◉ DSHS Austin Laboratory Viral Isolation Team
- ◉ Laboratory Response Network Lab personnel
 - Corpus Christi
 - Dallas
 - El Paso
 - Fort Worth
 - Harlingen
 - Houston
 - Lubbock
 - San Antonio
 - Tyler

LABORATORY TESTING AT TEXAS PUBLIC HEALTH LABS (PHL)

◉ All PHLs

- Routine: Real time RT-PCR for seasonal flu
- Special request: Influenza A (H5N1), A (H7N9)

◉ DSHS Austin only

- Non-routine testing:
 - Culture
 - Multiplex assays
 - Pyrosequencing
- Non-routine testing in specific circumstances must be requested and is not available for all specimens

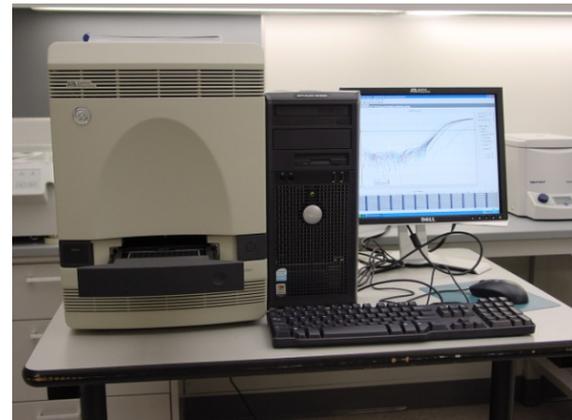
TESTING METHODS

- PCR/Molecular based
 - Real time RT-PCR
 - Multiplex assays
 - Pyrosequencing (Not diagnostic)
- Culture
 - Immunofluorescence
 - Hemagglutination/Inhibition

REAL TIME RT-PCR (SEASONAL FLU)

DSHS
Austin and
LRNs

- Primer/Probe sets: A, B, H1, H3, pdmA, pdmH1
- LRNs send small subset of specimens to DSHS Austin
- Advantages:
 - Detect unsubtypeables, H5, variants (H3v)
 - Monitor amplification in real time
 - Sensitivity vs culture
 - Faster turnaround time (TAT)
- Disadvantages:
 - No Isolate for further studies



REAL TIME RT-PCR (SPECIAL REQUEST)

DSHS
Austin and
LRNs

- ◉ Influenza A (H5N1)
- ◉ Influenza A (H7N9)

- ◉ For approval:
 - Must contact local epidemiologist (preferred)or
 - Emerging and Acute Infectious Disease Branch (EAIDB), Influenza Surveillance Team at 512-776-7676

HOW THE RESULTS ARE REPORTED: RT-PCR FOR FLU

- Results reported to submitters
- Turnaround time (DSHS and LRNs): 1-4 business days

MULTIPLEX RESPIRATORY VIRUS PANEL (RVP)

DSHS
Austin
only

- ◉ Platform: Luminex xTAG RVP
- ◉ Advantages
 - 12 viral targets:
 - RSV; Rhinovirus; Flu A/H1/H3/B; Adenovirus; Parainfluenza viruses 1,2,3; Metapneumoviruses
- ◉ Disadvantages:
 - *Labor intensive*, additional workspace
 - Requires NP swabs
 - Expensive
 - Not fully validated



HOW THE RESULTS ARE REPORTED: MULTIPLEX RVP

- Only flu negatives are tested via RVP
- RVP results **only reported to public health, in aggregate**
- Turnaround time (TAT): ~2 weeks
 - Batch tested
 - TAT could be longer depending on time of year

PYROSEQUENCING: ANTIVIRAL RESISTANCE TESTING

DSHS
Austin
only

- ◉ Sensitive, clinical specimens
- ◉ Known mutation that confers resistance to oseltamivir
- ◉ 2009 Influenza A (H1N1) positives only
- ◉ High throughput, 85-95 specimens
- ◉ Surveillance only, not for diagnostic use @ DSHS lab



HOW THE RESULTS ARE REPORTED: PYROSEQUENCING

- Results not reported to submitters
- Positive results reported to public health partners
- Turnaround time: 1-2 weeks

CULTURE

- ◉ Traditional method
- ◉ Grow the virus in animal cells
- ◉ Advantages
 - Isolate for further studies
 - Antigenic characterization: Strain id
 - Anti-viral resistance testing
 - Vaccines
 - Important for surveillance
- ◉ Disadvantages
 - Longer turnaround time

CULTURE CONFIRMATION

- Observation - Minimum 10 days
- Immunofluorescence
 - Ag + FI-Ab
 - 2.5 hours
 - A and B, subtypes
- Hemagglutination/Inhibition (Limited)
 - A and B, subtypes: H1, H3, 2009 H1N1
 - Strain lineage (B), Yamagata-like or Victoria-like
 - CDC, further characterization

HOW THE RESULTS ARE REPORTED: CULTURE

- Results reported to submitters only if “Virus isolation, clinical {Comprehensive cell culture}” selected as test on G-2V
- Turn around time: 3-15 days
 - Shorter if positive result

WHAT DOES DSHS SEND TO CDC FOR SURVEILLANCE?

○ Always

- Anything unusual
- Vaccinated cases: if we know
- Unsubtypeable specimens

○ 2013-2014 and upcoming season

- Up to 15 isolates and original clinical materials every 2 weeks: Surveillance (AC/*AVR)

ADDITIONAL TESTING DONE AT CDC

- ◉ Antigenic Characterization.....Drift
- ◉ Vaccine Studies: Will it grow in eggs?
- ◉ Genetic Sequencing.....Drift
- ◉ Antiviral Resistance
 - Pyrosequencing
 - NA Inhibition assay

HOW DOES DSHS CHOOSE THE SAMPLES SENT TO CDC?

- ◉ Send those with recent collection dates
- ◉ Try to be geographically representative
- ◉ Is leftover sample available for sending?
- ◉ Did it grow in culture?
- ◉ Sometimes, prompting by epidemiology

HOW THE RESULTS ARE REPORTED: ADDITIONAL CDC TESTING

- Antigenic characterization (AC) results reported by CDC to submitting laboratory
 - Turnaround time: 1-3 months
 - Flow of AC results:
 - DSHS Lab → EAIDB → RHDs and LRNs
- Antiviral resistance results reported by CDC to submitting laboratory
 - Positive results reported individually to state health departments
 - Negative results aggregated and reported sporadically to state laboratory
- Other CDC testing results not reported to submitting laboratories

ACCESSING RESULTS FROM DSHS AUSTIN LAB

- Reporting method is chosen by the submitter when the submitter signs up for a laboratory account
 - To make changes, contact Lab Reporting at 512-776-7578
- Reporting method options for submitter
 - Mail
 - Fax
 - LabWare portal
 - For LHD/RHD access, contact flutexas@dshs.state.tx.us to initiate the process

CONTACT INFORMATION

LRN LABORATORIES

LRN	Contact	Position Title	Phone	Email Address
Corpus Christi Nueces Co Public Health Lab	Valerie Requenez	BT Coordinator	361-826-7214	ValerieR@cctexas.com
Dallas County Health & Human Services	Daniel Serinaldi Joey Stringer	BT Coordinator Flu Coordinator	972-692-2764 972-692-2762	Daniel.Serinaldi@dallascounty.org Joey.Stringer@dallascounty.org
City of El Paso Dept. of Public Health	Minerva Cutter	BT Coordinator	915-543-3255	Minerva.Cutter@elpasotexas.gov
UTHSCT/PHLET Tyler	Janine Yost	BT Coordinator	903-877-5056	Janine.Yost@uthct.edu
TIEHH Bioterrorism Response Laboratory (Lubbock LRN)	Anna Gibson	BT Coordinator	806-885-0232	anna.gibson@tiehh.ttu.edu
San Antonio Metro Health District Lab	Patricia Blevins	BT Coordinator	210-207-5883	Patricia.Blevins@sanantonio.gov
South Texas Laboratory	Kristina Zamora	BT Coordinator	956-364-8369	Kristina.Zamora@dshs.state.tx.us
Tarrant County Public Health Department	Rebecca McMath	BT Coordinator	817-321-4755	RBMcMath@tarrantcounty.org
Houston Dept. of Health and Human Services Laboratory	Meilan Bielby	Supervisor, Molecular Diagnostics Section	832-393-3956	Meilan.bielby@houstontx.gov

CONTACT INFORMATION

DSHS AUSTIN LABORATORY

- ◉ Crystal VanCleave, Virology Lab Team Lead:
512-776-7594
- ◉ Martha Thompson, Medical Virology Group
Manager: 512-776-7515
- ◉ Richard Zapata, Container Preparation Group
Team Lead: 512-776-2976
- ◉ Dorothy Breeden, Container Preparation
Group Manager: 512-776-2674
- ◉ Walter Douglass, Microbiology Check-In
Manager: 512-776-7569
- ◉ Vanessa Telles, Special Projects Coordinator
(LRNs): 512-776-3475

CONTACT INFORMATION

INFLUENZA SURVEILLANCE TEAM

- ◉ Johnathan Ledbetter, State Influenza Surveillance Coordinator: 512-776-6223
- ◉ Bob Russin, ILINet Coordinator: 512-776-6242
- ◉ Lesley Brannan, Invasive and Respiratory Infectious Disease Team Lead: 512-776-6354

- ◉ Flu team mailbox:
flutexas@dshs.texas.state.tx