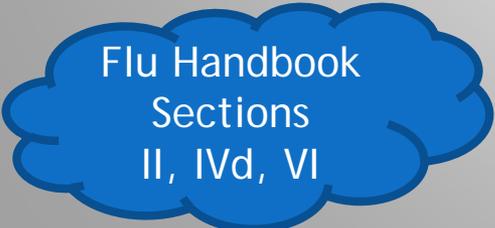


LABORATORY SPECIMEN COLLECTION, SUBMISSION, AND TESTING

OR...EVERYTHING YOU EVER WANTED TO KNOW
ABOUT PUBLIC HEALTH INFLUENZA LABORATORY
SURVEILLANCE IN TEXAS

Carol Davis, MSPH, CPH
Lesley Brannan
Martha Thompson, MPH



Flu Handbook
Sections
II, IVd, VI

LEARNING OBJECTIVES

- At the end of this activity, you will be able to:
 - Describe the process for flu surveillance specimen collection and submission to a Texas public health laboratory
 - Name the types of testing performed on influenza specimens at Texas public health laboratories

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”

○ Can anyone submit specimens?

- Recruited providers must see patients with ILI/flu
- You can 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

RECRUITING THE “WHEN” AND “WHAT”

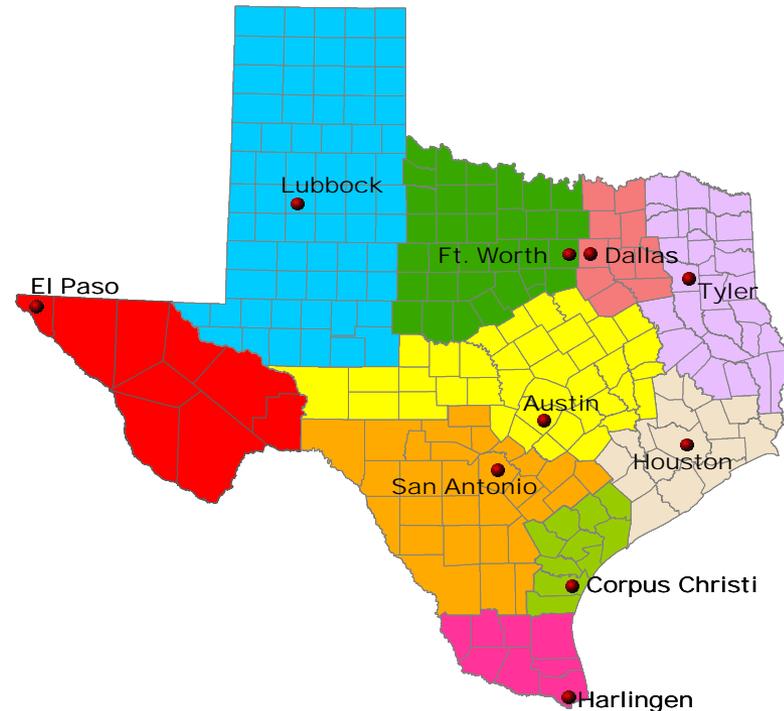
- **When should I recruit providers?**
 - No later than August
 - Potentially, year-round
- **What will the providers be doing?**
 - Identifying patients with ILI/flu
 - Collecting specimens from these patients
 - Submitting specimens to a Texas public health laboratory for flu testing

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-2A 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-2A 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)

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

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Test
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supplies



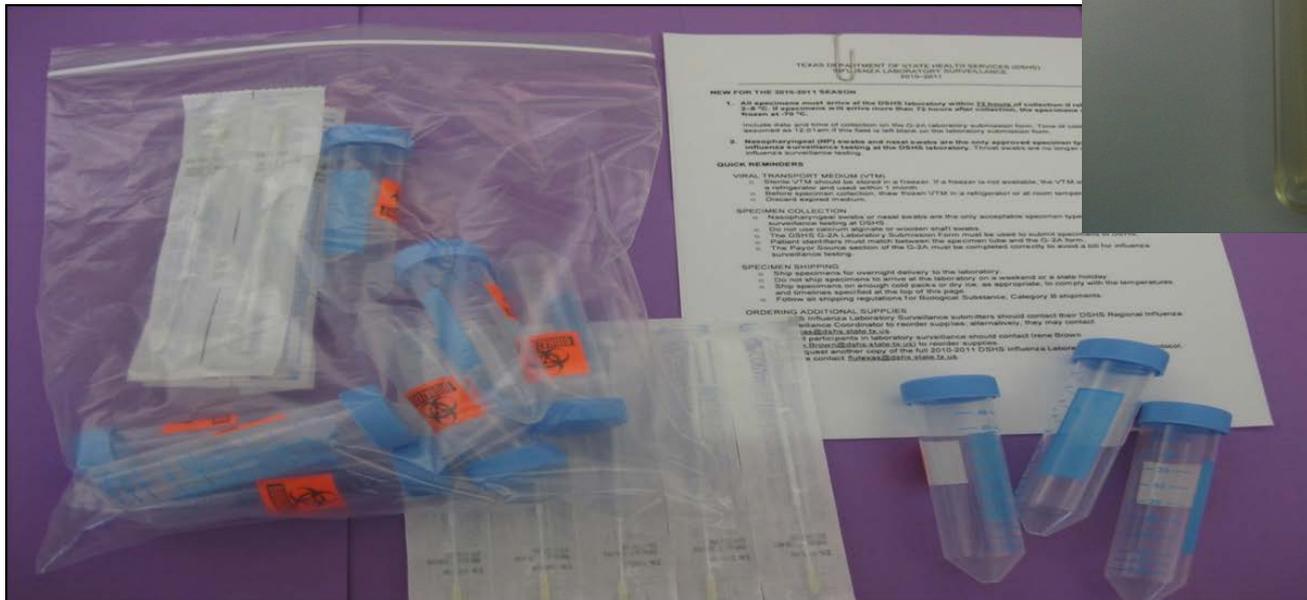
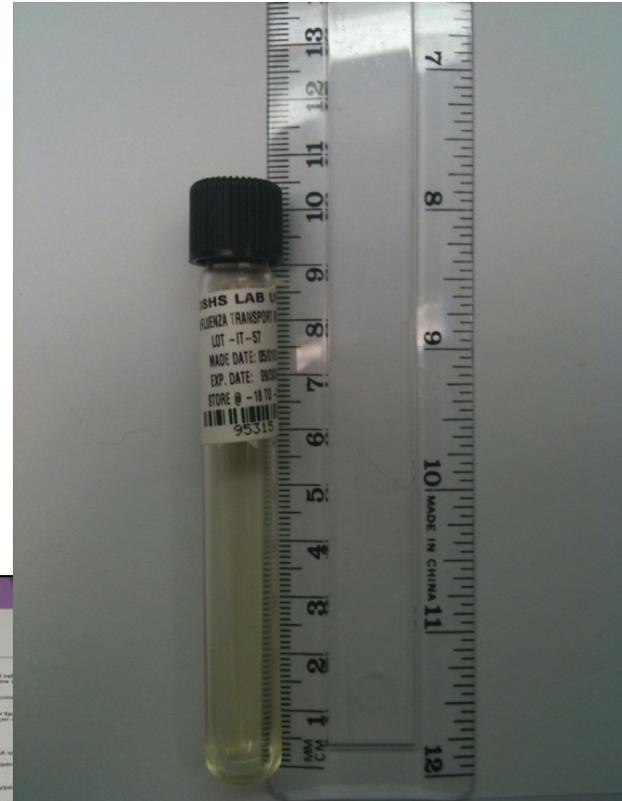
Ship
specimens



AVAILABLE SUPPLIES

- Supplies shipped out by Container Preparation in the DSHS Austin Lab:
 - DSHS influenza transport medium (“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

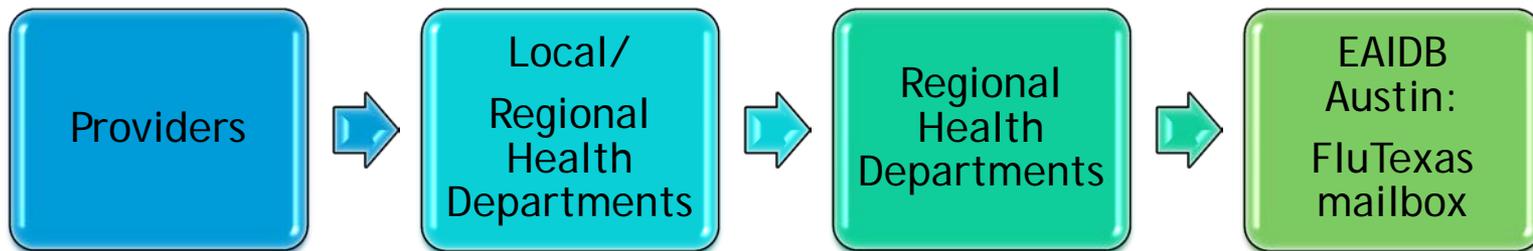
- ◉ DSHS VTM lasts longest in the freezer
- ◉ Only keep refrigerated VTM for about a month
 - Limiting factor: antibiotics in the medium
- ◉ Reorder as necessary throughout the season
- ◉ Plan ahead
- ◉ For 2013-2014 season, check expiration dates regularly

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
- 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 2013

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 2013						
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					

*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

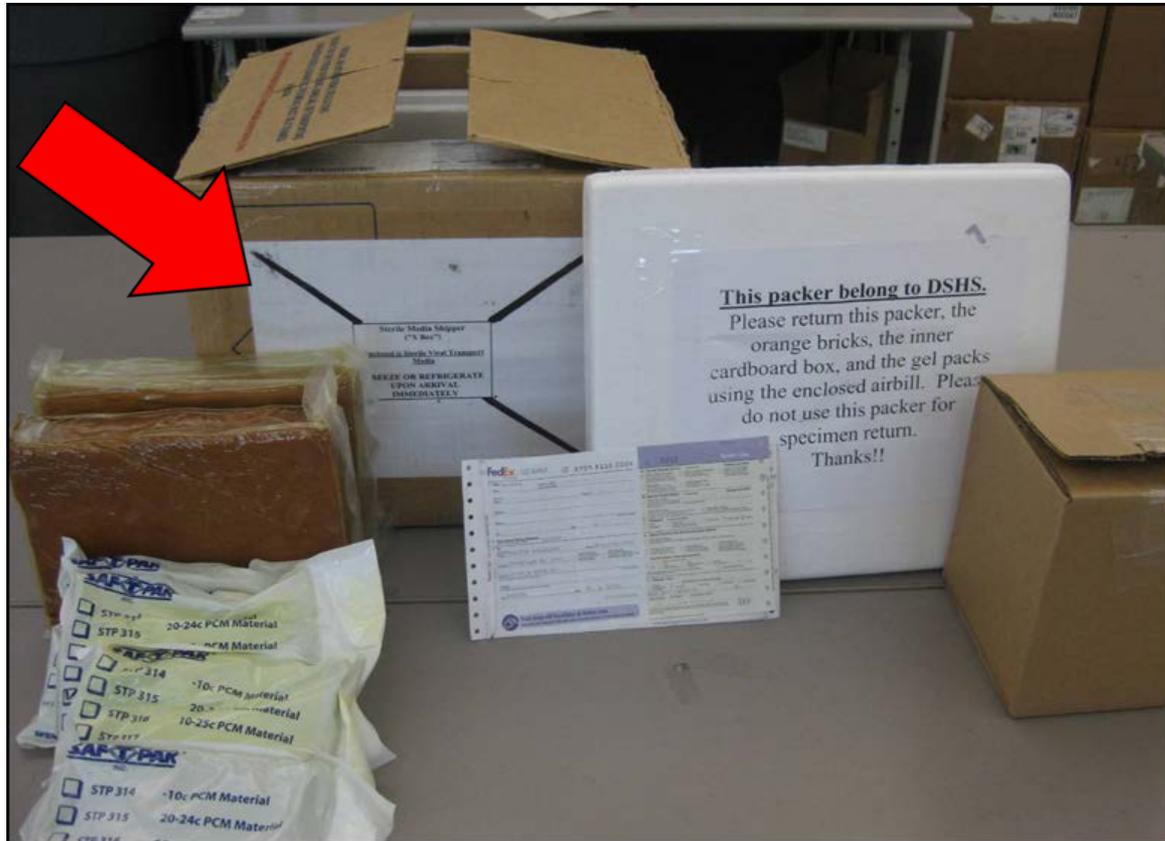


LOOK FOR THE "X - BOX"

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

Refrigerate 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

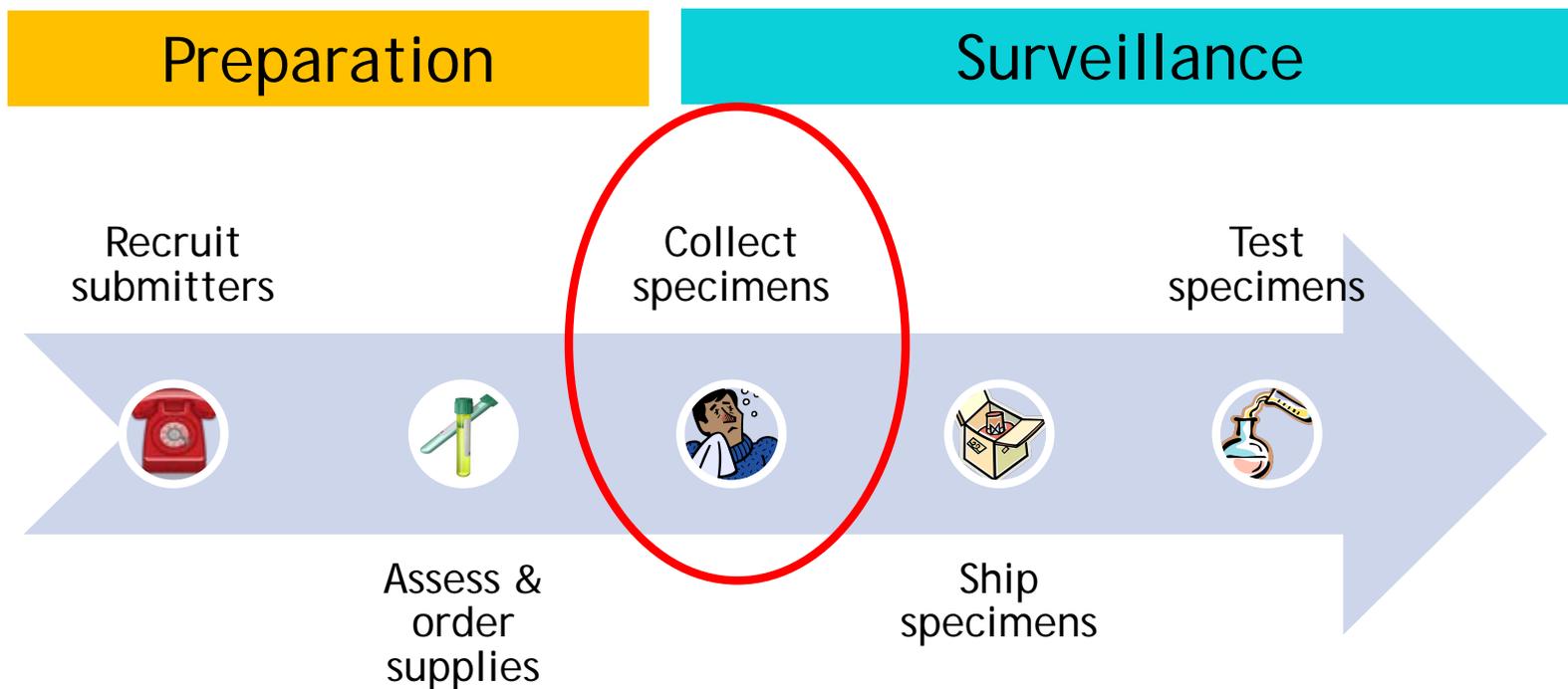
- ⦿ Check expirations dates regularly - "old" VTM lots expire mid-season!
- ⦿ Unpack the "X Box" immediately; refrigerate or freeze VTM
- ⦿ Unpack and inventory other supplies
- ⦿ Return the "X Box" and its contents to DSHS Austin
- ⦿ If necessary, distribute supplies to other surveillance sites

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 and no other illness explanation
 - Recent illness onset (≤ 4 days)
- 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
 - 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:

- Per Region
 - Goal: At least 10 specimens submitted per week
- Per Provider
 - Limit: Generally not more than 5 per week

○ Communicate with your laboratory!



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 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-2A Specimen Submission Form (Aug 2011) CAP# 302401 CLIA #45D060644 Laboratory Services Section, MC-1547 P. O. Box 549347, Austin, Texas 78714-9347 Courier: 1100 W. 43 rd Street, Austin, Texas 78756 (888) 963-7111 x7318 or (512) 776-7318 http://www.dshs.state.tx.us/lab	
Section 1. SUBMITTER INFORMATION - (11 REQUIRED) Submitter/TPI Number ** Submitter Name ** NPI Number ** Address ** City ** State ** Zip Code ** Phone ** Contact: Fax ** Clinic Code		Section 5. ORDERING PHYSICIAN INFORMATION - (11 REQUIRED) Ordering Physician's NPI Number ** Ordering Physician's Name ** Section 6. PAYOR SOURCE - (REQUIRED) 1. Billing 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 payer 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 <u>only one box</u> below to indicate whether we should bill the submitter, Medicaid, Medicare, private insurance, or GS/HS Program: <input type="checkbox"/> Medicaid (c) <input type="checkbox"/> Medicare (b) Medical/Medicare #: <input type="checkbox"/> Submitter (1) <input type="checkbox"/> Private Insurance (4) <input type="checkbox"/> Medicaid HMO <input type="checkbox"/> Medicare HMO <input type="checkbox"/> BID <input type="checkbox"/> The V - Child Health (142) <input type="checkbox"/> BT Grant (1917) <input type="checkbox"/> Title V - Dysplasia <input type="checkbox"/> ELC Grant <input type="checkbox"/> Title V - Family Planning (4) <input type="checkbox"/> HIV / STD (1408) <input type="checkbox"/> Title V - Prenatal (1413) <input type="checkbox"/> IDEAG (1420) <input type="checkbox"/> Title X (12) <input type="checkbox"/> Immunizations (1509) <input type="checkbox"/> Title XX (13) <input type="checkbox"/> NBS CDC (11) <input type="checkbox"/> TX CLPPP (9) <input type="checkbox"/> Refugee (7) <input type="checkbox"/> Zoonosis (1620) <input type="checkbox"/> TB Elimination (1619) <input type="checkbox"/> Other:	
Section 2. PATIENT INFORMATION - (11 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 / B-National ID # DOB (mm/dd/yyyy) ** Sex ** SSN <input type="checkbox"/> 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 # / OUI / CDD ID Previous DSHS Specimen Lab Number HIV / Managed Care / Insurance Company Name *		Address * City * State * Zip Code * Responsible Party (Last Name, First Name) * Insurance Phone Number * Responsible Party's insurance ID Number * Group Name Group Number *I hereby authorize the release of information related to the services described here and hereby assign any benefits to which I am entitled to the Texas Department of State Health Services, Laboratory Services Section. Signature: _____ Date: _____ Section 7. HIV / HCV SCREENING Section 8. SYPHILIS SEROLOGY <input type="checkbox"/> HCV <input type="checkbox"/> RPR only - Test of cure <input type="checkbox"/> <input type="checkbox"/> HIV <input type="checkbox"/> RPR - Syphilis screen <input type="checkbox"/> <input type="checkbox"/> HIV Western blot only <input type="checkbox"/> RPR Syphilis confirmation <input type="checkbox"/> * Justification: _____ * Justification: _____ <input type="checkbox"/> FTA-ABS <input type="checkbox"/>	
Section 3. SPECIMEN SOURCE OR TYPE <input type="checkbox"/> Abcess (site) <input type="checkbox"/> Lesion (site) <input type="checkbox"/> Sputum: Inhaled <input type="checkbox"/> Blood <input type="checkbox"/> Lymph node (site) <input type="checkbox"/> Sputum: Natural <input type="checkbox"/> Blood: Filter paper <input type="checkbox"/> NP: wash / swab / aspirate <input type="checkbox"/> Throat swab <input type="checkbox"/> Bone marrow <input type="checkbox"/> Nasal Wash <input type="checkbox"/> Buccal swab <input type="checkbox"/> Bronchial washings <input type="checkbox"/> Oral fluid <input type="checkbox"/> Tissue (site) <input type="checkbox"/> Cervical <input type="checkbox"/> Plasma <input type="checkbox"/> Urethral <input type="checkbox"/> CSF <input type="checkbox"/> Rectal swab <input type="checkbox"/> Urine <input type="checkbox"/> Eye <input type="checkbox"/> Serum <input type="checkbox"/> Vaginal <input type="checkbox"/> Feces/stool <input type="checkbox"/> Acute date: _____ Wound (site) <input type="checkbox"/> Gastric <input type="checkbox"/> Conv. date: _____ Other: _____		Section 9. CDC REFERENCE TESTS Section 10. VIROLOGY <input type="checkbox"/> Chagas disease <input type="checkbox"/> Electron microscopy <input type="checkbox"/> Cystereosis <input type="checkbox"/> Influenza surveillance <input type="checkbox"/> Echinococcus <input type="checkbox"/> Vaccine received: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> HIV-1 <input type="checkbox"/> Reference culture (virus ID on isolate) <input type="checkbox"/> HTLV-1 <input type="checkbox"/> Suspected: <input type="checkbox"/> Rubella IgM <input type="checkbox"/> Leptospirosis <input type="checkbox"/> <input type="checkbox"/> Rubella IgG <input type="checkbox"/> Toxocariasis <input type="checkbox"/> Suspected if any: <input type="checkbox"/> Toxoplasma IgG <input type="checkbox"/> Rubeola IgM <input type="checkbox"/> VDRL (CSF only) <input type="checkbox"/> <input type="checkbox"/> Tularemia <input type="checkbox"/> Other: <input type="checkbox"/>	
Section 4. REFERENCE SEROLOGY / IMMUNOLOGY <input type="checkbox"/> Arbovirus (SLE / West Nile) <input type="checkbox"/> Legionellosis IgG \$ <input type="checkbox"/> Aspergillus Immunodiffusion <input type="checkbox"/> Lyme disease IgG / IgM \$ @ <input type="checkbox"/> Brucellosis \$ @ <input type="checkbox"/> Mumps IgG \$ <input type="checkbox"/> Mumps IgM @ <input type="checkbox"/> Cat-scratch disease IgG \$ @ <input type="checkbox"/> Plaque \$ @ <input type="checkbox"/> Q fever IgG \$ <input type="checkbox"/> CMV IgG \$ @ <input type="checkbox"/> CMV IgM <input type="checkbox"/> Rickettsial panel (RMSF, typhus) \$ <input type="checkbox"/> Ehrlichia IgG \$ @ <input type="checkbox"/> Rubella, Syphilis, Hep B sAg <input type="checkbox"/> <input type="checkbox"/> Fungal CF panel <input type="checkbox"/> Rubella, Syphilis, Hep B sAg, HIV <input type="checkbox"/> <input type="checkbox"/> Hantavirus IgG / IgM \$ @ <input type="checkbox"/> Rubella Screen IgG <input type="checkbox"/> <input type="checkbox"/> Acute Hepatitis Panel <input type="checkbox"/> Rubella IgM @ <input type="checkbox"/> <input type="checkbox"/> Hepatitis A (total Ab) <input type="checkbox"/> Rubeola IgG \$ <input type="checkbox"/> Rubeola IgM @ <input type="checkbox"/> Hepatitis A IgM <input type="checkbox"/> Toxoplasma IgG \$ <input type="checkbox"/> Toxoplasma IgM @ <input type="checkbox"/> Hepatitis B surface Ab <input type="checkbox"/> Tularemia \$ @ <input type="checkbox"/> <input type="checkbox"/> Hepatitis B surface Ag <input type="checkbox"/> Varicella Zoster IgG \$ <input type="checkbox"/> Hepatitis B core (total Ab) <input type="checkbox"/> Other: @ <input type="checkbox"/> Hepatitis B core IgM <input type="checkbox"/> <input type="checkbox"/> Hepatitis B eAb <input type="checkbox"/> <input type="checkbox"/> Hepatitis B eAg <input type="checkbox"/> <input type="checkbox"/> Hepatitis C IgG <input type="checkbox"/>		Section 11. MOLECULAR STUDIES <input type="checkbox"/> PCR for: <input type="checkbox"/> PFGE for: <input type="checkbox"/> Other:	
NOTES: Each test box (ex. Virology) requires a separate form and specimen. All dates must be entered in mm/dd/yyyy format. @ = Document time & date specimens were removed from FREEZER / REFRIGERATOR in the bottom box. * = Provide patient history on reverse side of form to avoid delay of specimen processing. \$ = Justification is required. @ = Requires acute and convalescent specimens. Please see the form's instructions for details on how to complete this form. Visit: http://www.dshs.state.tx.us/lab		REQUIRED FOR COLD SHIPMENTS. Indicate removal from: <input type="checkbox"/> FREEZER <input type="checkbox"/> REFRIGERATOR DATE TIME FOR LABORATORY USE ONLY Specimen Received: <input type="checkbox"/> Room Temp. <input type="checkbox"/> Cold <input type="checkbox"/> Frozen	

- Complete sections 1,2,3,5,6,10
- Section 2 required (min)
 - Name, sex, DOB, address
 - Date and time of collection
- Section 6: Contact flutexas@dshs.state.tx.us for instructions
- Section 10: Check “Influenza surveillance”, indicate patient vaccination status

SPECIMEN COLLECTION: THE PROCESS

Why NP swabs are so small

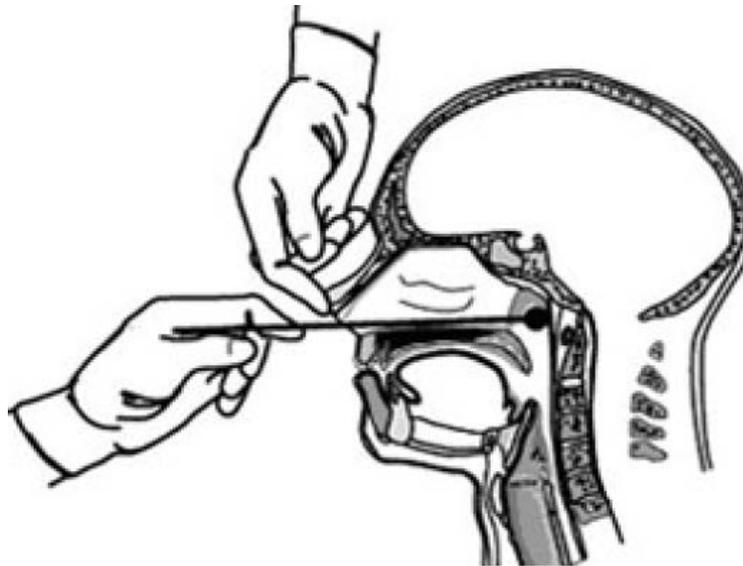


Image: CDC Manual for the Surveillance of
Vaccine-Preventable Diseases, 4th ed, 2008

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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Collect
specimens



Ship
specimens



Test
specimens

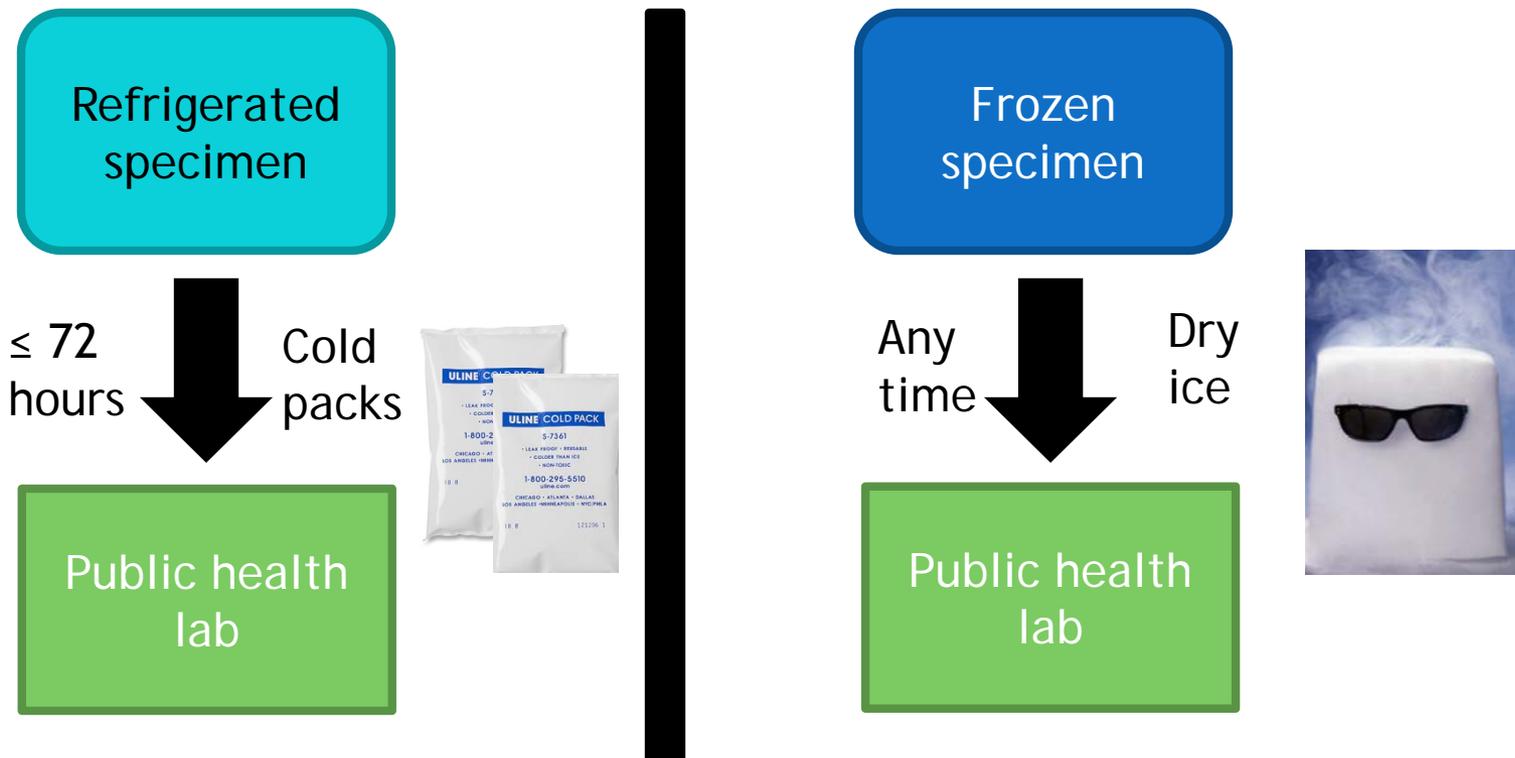


SHIPPING SPECIMENS: TIME CONSIDERATIONS

- 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 your 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?

INFLUENZA SURVEILLANCE ACTIVITIES - OUTLINE

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submitters



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specimens



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supplies



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

- 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

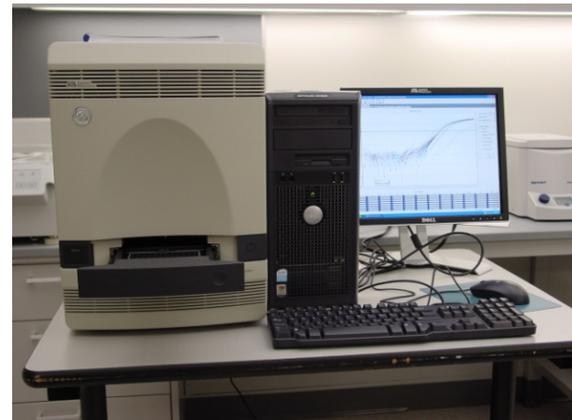
TESTING METHODS

- ◎ PCR/Molecular based
 - Real time RT-PCR
 - Multiplex assays
 - Pyrosequencing (Not diagnostic)

- ◎ Culture
 - Immunofluorescence
 - Hemagglutination/Inhibition

REAL TIME RT-PCR

- CDC assay: Seasonal flu; Pandemic H1N1
- 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)

- Influenza A (H5N1)
- Influenza A (H7N9)
- Must contact Emerging and Acute Infectious Disease Branch (EAIDB) Influenza Surveillance Team first at 512-776-7676

HOW THE RESULTS ARE REPORTED: RT-PCR

- ⦿ Results reported to submitters
- ⦿ Turnaround time (DSHS and LRNs): 1-4 business days
- ⦿ Other information
 - Why do my results say “Influenza A H3” instead of “Influenza A H3N2”?

MULTIPLEX RESPIRATORY VIRUS PANEL (RVP)

- 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

- Few specimens 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

- ◉ Sensitive, clinical specimens
- ◉ Known mutation that confers resistance to oseltamivir
- ◉ 2009 Influenza H1N1
- ◉ 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 (comprehensive)” selected on G-2A
- 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

○ 2012-2013

- Up to 15 isolates and original clinical materials every 2 weeks: Surveillance (AgC/*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?

- ◉ Recent collection dates
- ◉ Geographic spread
- ◉ Leftover sample available?
- ◉ Did it grow in culture?

HOW THE RESULTS ARE REPORTED: ADDITIONAL CDC TESTING

- Antigenic characterization results reported by CDC to submitting laboratory
 - Turnaround time: 1-3 months
 - DSHS Lab sends results to EAIDB
 - EAIDB sends results to RHDs and LRNs
- Antiviral resistance results reported by CDC to submitting laboratory
 - Positive results reported individually to state health departments
 - Negative - aggregated results reported sporadically, if at all
- Other CDC testing results not reported to submitting laboratories

ACCESSING RESULTS

- 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	Ashley Cox	BT Coordinator	361-826-7214	ashleyc@cctexas.com
Dallas County Health & Human Services	Joey Stringer	BT Coordinator	972-692-1323	Joey.Stringer@dallascounty.org
City of El Paso Dept. of Public Health	Minerva Cutter	BT Coordinator	915-543-3255	Mineerva.Cutter@elpasotexas.gov
UTHSCT/PHLET Tyler	Janine Yost	BT Coordinator	903-877-5056	Janini.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 Leader
 - 512-776-7594
- Virology Lab
 - 512-776-2452
- Martha Thompson, Medical Virology Group Manager
 - 512-776-7515

CONTACT INFORMATION

INFLUENZA SURVEILLANCE TEAM

- ◉ Lesley Brannan, State Influenza Surveillance Coordinator
 - 512-776-6354
- ◉ Bob Russin, ILINet Coordinator
 - 512-776-6242
- ◉ Carol Davis, Infectious Respiratory and Invasive Disease Team Leader
 - 512-776-6223
- ◉ Flu team mailbox:
flutexas@dshs.texas.state.tx