



Overview of the National Respiratory and Enteric Virus Surveillance System

Jeffry D. Mutuc, MPH
Epidemiologist

2010 Texas Influenza Surveillance Coordinators' Conference
July 20, 2010

Objectives

- ❑ **Describe the National Respiratory and Enteric disease Surveillance System (NREVSS)**
- ❑ **Explain how NREVSS data contributes to influenza surveillance at the national and state level**

Outline

- ❑ **NREVSS Overview**
 - Website
 - Reporting Structure
- ❑ **Data Applications**

- ❑ **Influenza Surveillance**
 - National
 - Texas
- ❑ **Participating in NREVSS**

NREVSS Overview

- ❑ **Passive, laboratory-based surveillance system**
 - Specimen-based
 - Developed in the early 1980s
 - electronic data since 1989

- ❑ **Monitors real-time circulation of respiratory and enteric viruses**

- ❑ **Monitors trends in seasonality of respiratory and enteric viruses**

NREVSS Overview

❑ Data sources

- State and local public health laboratories, commercial labs, and hospitals/universities

❑ Test types

- Antigen detection
- Virus isolation
- PCR

❑ Weekly reporting of no. tests and no. positives

$$\text{Circulation} = \frac{\# \text{ positive results}}{\# \text{ tests performed}}$$

NREVSS Overview

□ Viruses include:

- Influenza
 - 2009 AH1N1, Seasonal AH1N1, AH3N2, A Unknown, Flu B
- Respiratory Syncytial Virus (RSV)
- Human Parainfluenza (HPIV) Viruses 1-4
- Respiratory & Enteric Adenovirus
- Rotavirus
- Human Metapneumovirus*
- Enterovirus*
- Rhinovirus*

* added in 2007

NREVSS Overview

Season	# reporting labs
2000-2001	81
2001-2002	86
2002-2003	80
2003-2004	94
2004-2005	96
2005-2006	106
2006-2007*	393
2007-2008*	648
2008-2009*	717
2009-2010*	678

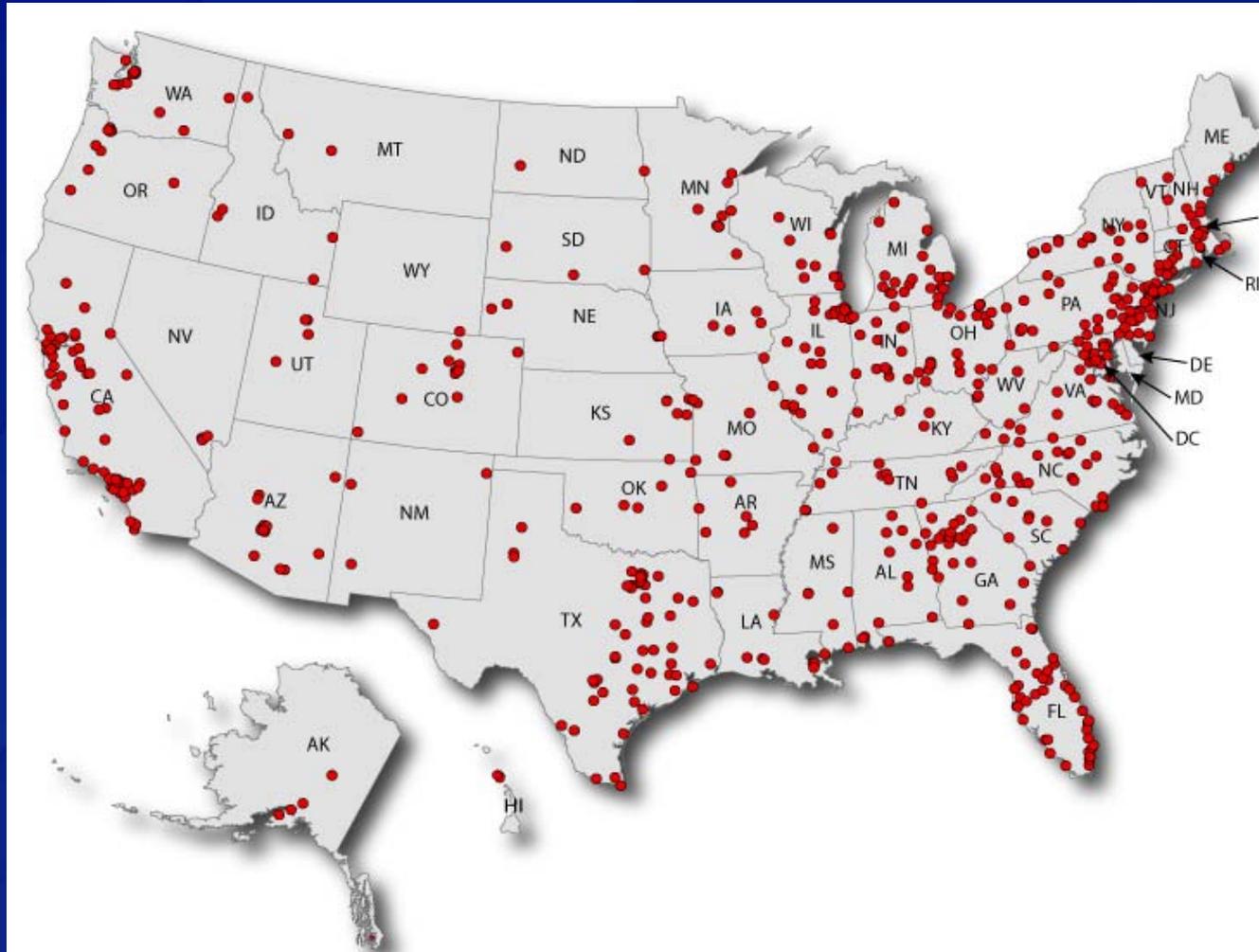
*Surveillance Data, Inc. (SDI), a private company that conducts RSV surveillance with support from MedImmune, Inc. (Gaithersburg, Maryland), contributes laboratory data to NREVSS.

NREVSS Overview

□ 2009-2010 National Statistics

Virus	# labs reporting
RSV	652
Influenza	288
Rotavirus	203
Respiratory Adenovirus	129
HPIV 1-4	128
Enterovirus	74
hMPV	61
Rhinovirus	56
Enteric Adenovirus	32

Map of Participating NREVSS Labs



<http://www.cdc.gov/surveillance/nrevsslabs/map.html>

Current NREVSS Website

CDC Home
CDC Centers for Disease Control and Prevention
Your Online Source for Credible Health Information

A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

The National Respiratory and Enteric Virus Surveillance System (NREVSS)

NREVSS Home
Respiratory Virus Surveillance
Rotavirus Surveillance
Respiratory Adenovirus Surveillance
National Human Parainfluenza Virus Surveillance
Participating Labs
RSV

NREVSS
National Respiratory and Enteric Virus Surveillance System

The National Respiratory and Enteric Virus Surveillance System (NREVSS) is a laboratory-based system that monitors temporal and geographic patterns associated with the detection of respiratory syncytial virus (RSV), human parainfluenza viruses (HPIV), respiratory and enteric adenoviruses and rotavirus.

All data graphs on this site were last updated on **April 6, 2010**

Viruses in NREVSS

 Respiratory Syncytial Virus	 Rotavirus
 Respiratory Adenovirus	 Human Parainfluenza Virus

Data Collection

In 2007, data collection for rhinovirus, enterovirus and human metapneumovirus began. Influenza specimen information, also reported to NREVSS, is integrated with [CDC Influenza Surveillance](#). Data are collected from collaborating university and community hospital laboratories, selected state and county public health laboratories, and commercial laboratories. These participating laboratories report virus antigen detections, isolations and electron microscopy results on a weekly basis.

NREVSS data are made available to public health professionals, health care providers, and the

Text size: S M L XL
Email page
Print page
Bookmark and share

Contact Us:
Centers for Disease Control and Prevention
1600 Clifton Rd
Atlanta, GA 30333
800-CDC-INFO (800-232-4636)
TTY: (888) 232-6348
24 Hours/Every Day
cdcinfo@cdc.gov
For inquires:
[Email NREVSS](#)
For web issues:
[NCIRD Webmaster](#)

<http://www.cdc.gov/surveillance/NREVSS/>

Data Entry Site

[CDC Home](#) [NCIRD](#) [NREVSS](#)



Centers for Disease Control and Prevention

[CDC Home](#) [NCIRD](#) [NREVSS](#)



Centers for Disease Control and Prevention

Your Online Source for Credible Health Information

[Login](#) | [How to use this site](#) | [Contact NREVSS](#)

National Respiratory and Enteric Virus Surveillance System (NREVSS) Online Data Submission System (ODSS)

If login assistance is required, contact the NREVSS administrator or call (404)-639-3607, between the hours of 8am and 5pm EST, Monday through Friday. Passwords are case-sensitive.

Each
participating
lab is given an
individual lab
ID and
password



Lab ID	<input type="text"/>
Password	<input type="password"/>
<input type="button" value="Login"/>	

Data Applications

- ❑ Recognize and consider possible etiologies and outbreaks of respiratory and enteric diseases**
- ❑ Determine seasonality of viruses**
- ❑ Real-time reporting and greater public access to data**

Data Applications – Outbreak

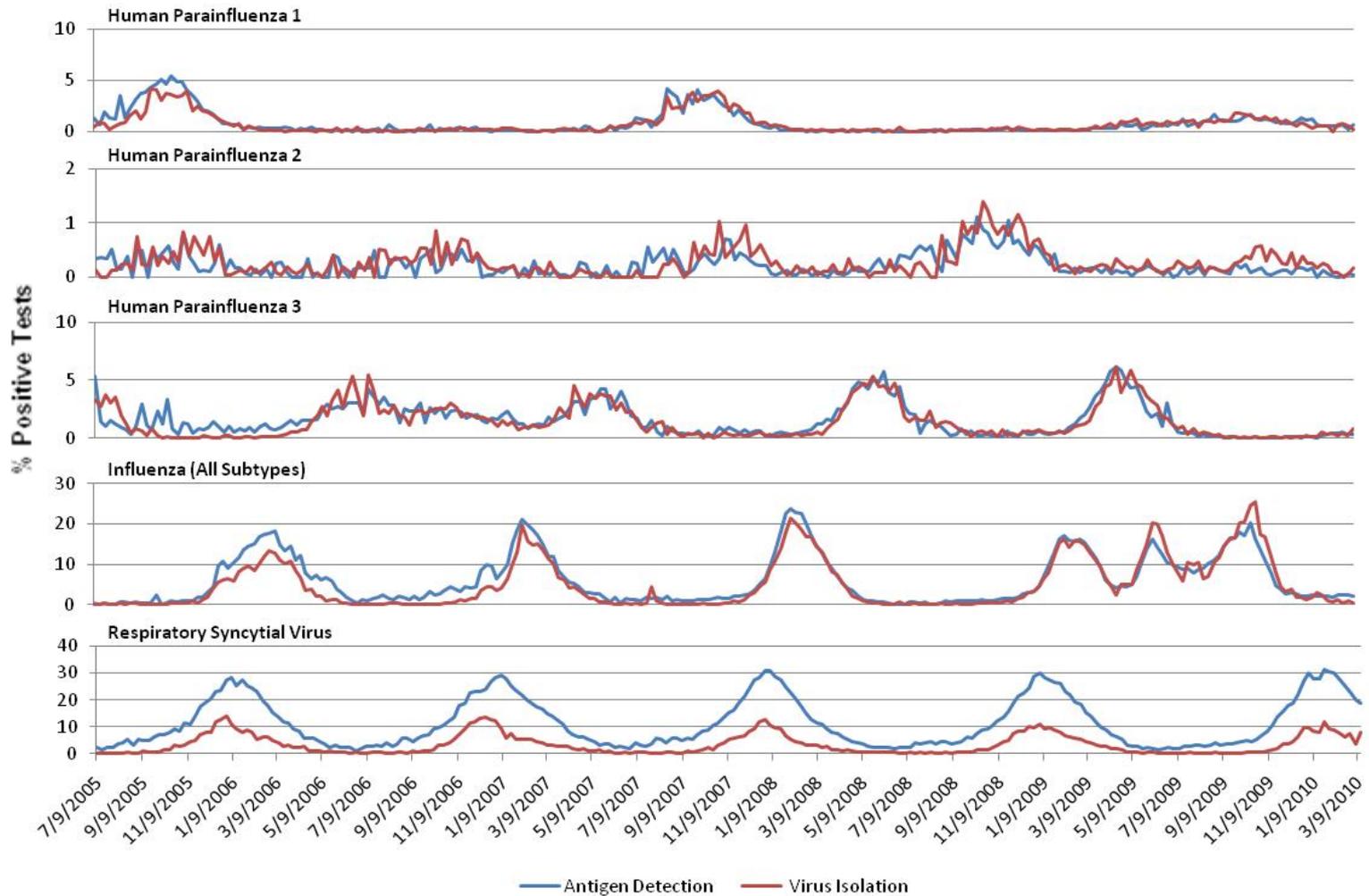
□ Fall 2009

- Hospital in an urban setting
- Increase in emergency room visits for respiratory disease
- Very few flu positive lab results
 - Pandemic H1N1?
- CDC asked to investigate

Data Applications

- ❑ Recognize and consider possible etiologies and outbreaks of respiratory and enteric diseases**
- ❑ Determine seasonality of viruses**
- ❑ Real-time reporting and greater public access to data**

Respiratory Virus Seasonality, United States, July 2005 – March 2010



Data Applications

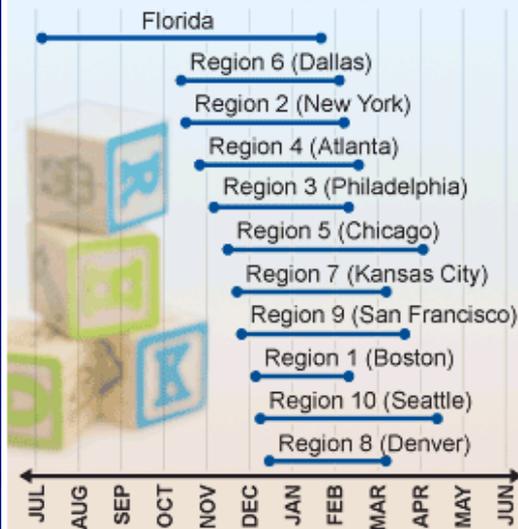
- ❑ Recognize and consider possible etiologies and outbreaks of respiratory and enteric diseases**
- ❑ Determine seasonality of viruses**
- ❑ Real-time reporting and greater public access to data**

Surveillance Reports

2007-2008

2008-2009

Duration of RSV Season, by U.S. Department of Health and Human Services Region* and Florida, July 2007–June 2008



*U.S. Department of Health & Human Services regions (headquarter city). Region 1 (Boston): Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. Region 2 (New York): New Jersey and New York. Region 3 (Philadelphia): Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia. Region 4 (Atlanta): Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee. Region 5 (Chicago): Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. Region 6 (Dallas): Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. Region 7 (Kansas City): Iowa, Kansas, Missouri, and Nebraska. Region 8 (Denver): Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming. Region 9 (San Francisco): Arizona, California, Hawaii, and Nevada. Region 10 (Seattle): Alaska, Idaho, Oregon, and Washington. Note: Maine, New Hampshire, District of Columbia, New Mexico, Nebraska, Montana, and Idaho did not have any participating laboratories in the 2007–08 season analysis.

HHS Region (headquarter city) or State	States Included in Region	Start of RSV Season	
		2008	2009
Florida	FL	Mid July	Mid July
Region 6 (Dallas)	AR, LA, NM, OK, TX	Late October	Late October
Region 2 (New York)	NJ, NY	Mid November	Mid November
Region 4 (Atlanta)	AL, GA, KY, MS, NC, SC, TN	Early October	Early October
Region 3 (Philadelphia)	DE, DC, MD, PA, VA, WV,	Late November	Late November
Region 5 (Chicago)	IL, IN, MI, MN, OH, WI	Early December	Late November
Region 7 (Kansas City)	IA, KS, MO, NE	Late November	Late November
Region 9 (San Francisco)	AZ, CA, HI, NV	Late November	Late November
Region 1 (Boston)	CT, ME, MA, NH, RI,	Late November	Late November
Region 10 (Seattle)	AK, ID, OR, WA	Late November	Late November
Region 8 (Denver)	CO, MT, ND, SD, UT, WY	Late December	Late December

<http://www.cdc.gov/Features/dsRSV/>

<http://www.cdc.gov/Features/dsRSV/>

NREVSS

INFLUENZA SURVEILLANCE

National Influenza Surveillance

□ Data Sources (~155 laboratories)

- 85 U.S. WHO collaborating labs
 - All state public health laboratories
 - Some county public health laboratories
 - Some large tertiary care or academic medical centers
- 70 NREVSS labs
 - Chosen based on geographic region
 - Excluding NREVSS labs that may also be WHO collaborating labs
 - Supplements existing WHO data

National Influenza Surveillance

□ WHO Lab

- Resources to subtype
- Report on age

vs.

□ NREVSS Lab

- Report subtypes if available
- No demographic information

□ Data Applications

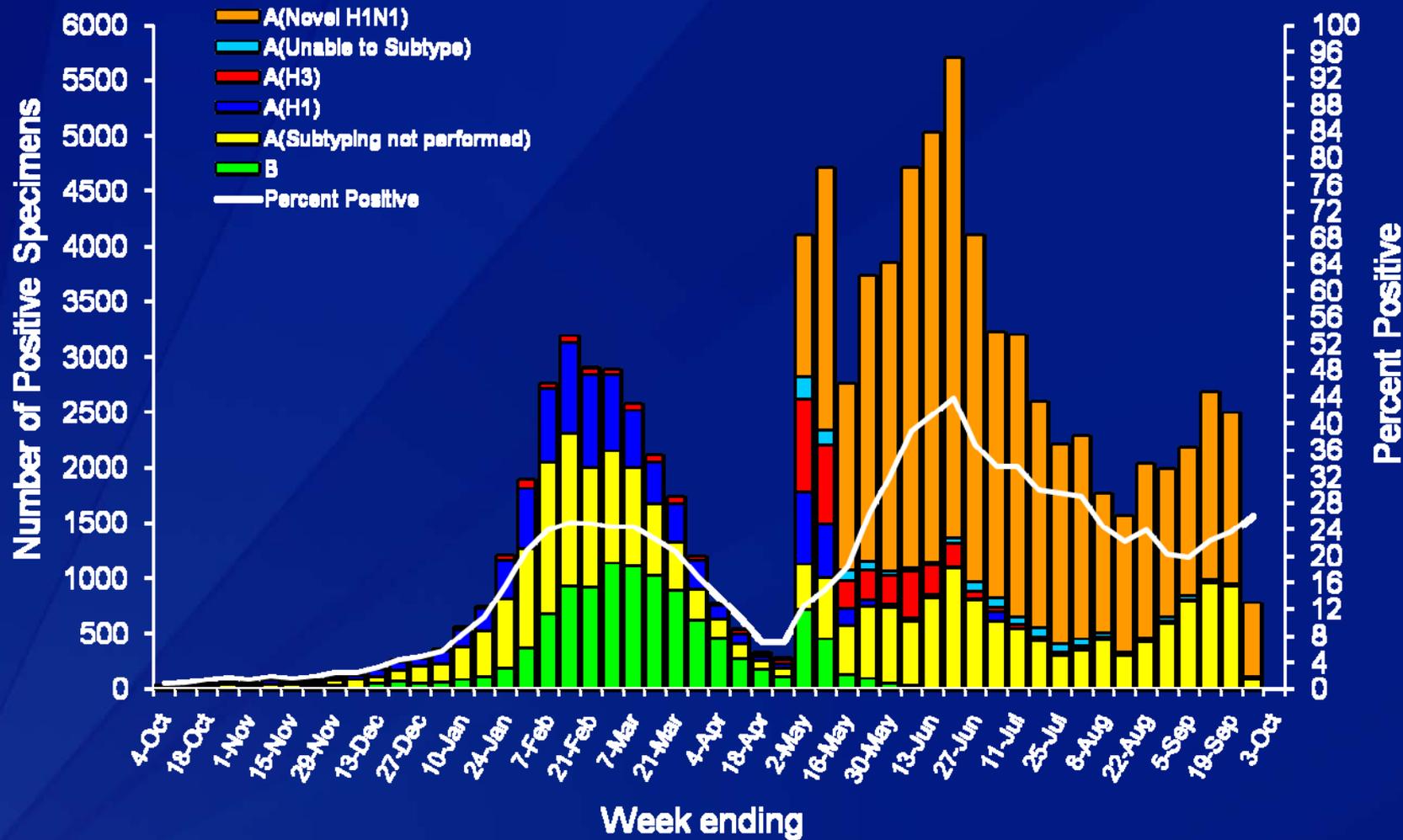
□ H1N1 pandemic

- timing and extent of influenza circulation
- impact of other respiratory viruses

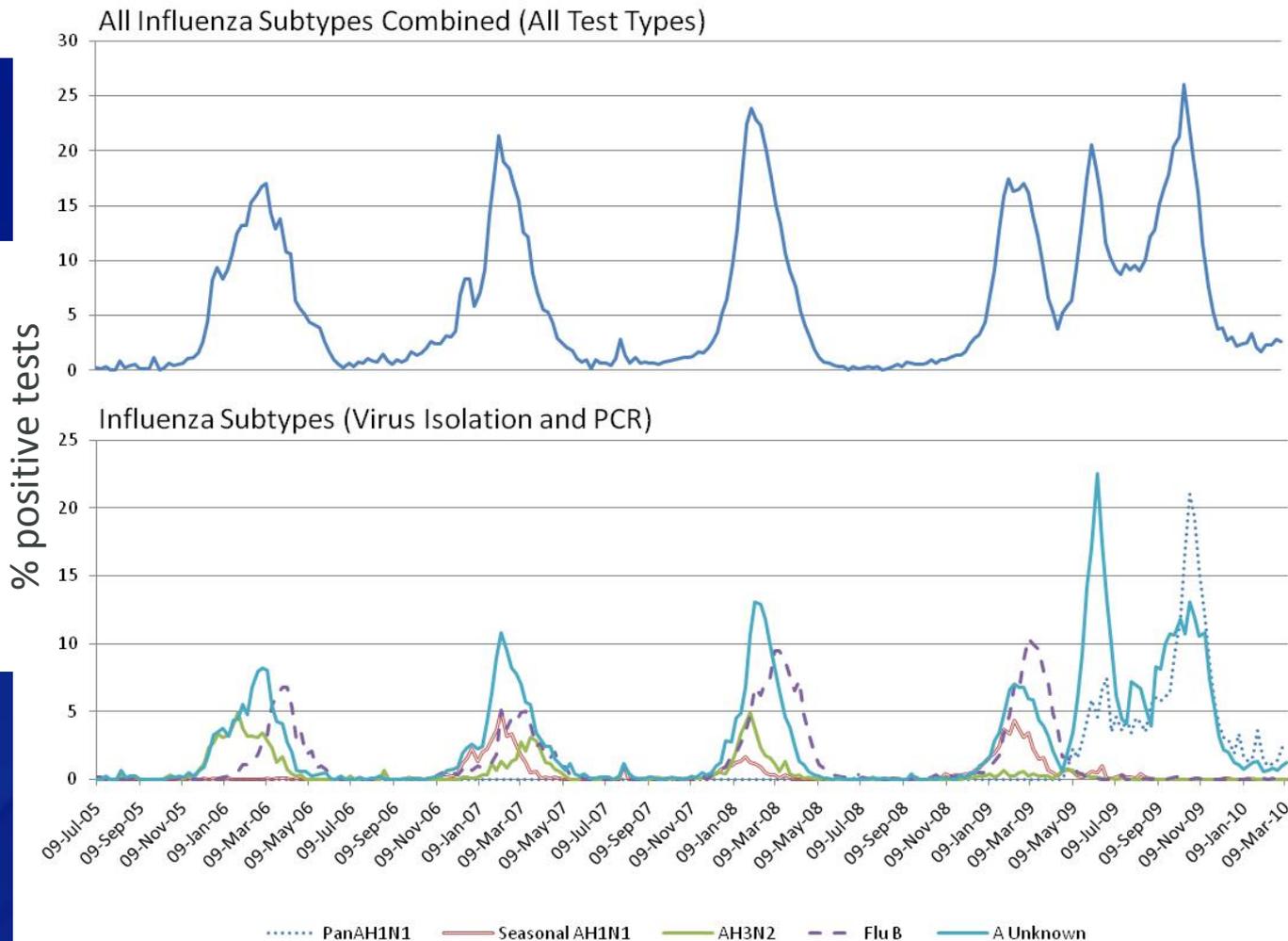
□ Help describe unexplained increases in ILI

Epidemiology/Surveillance

U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2008-09



National Influenza (NREVSS Data)



Unpublished Data

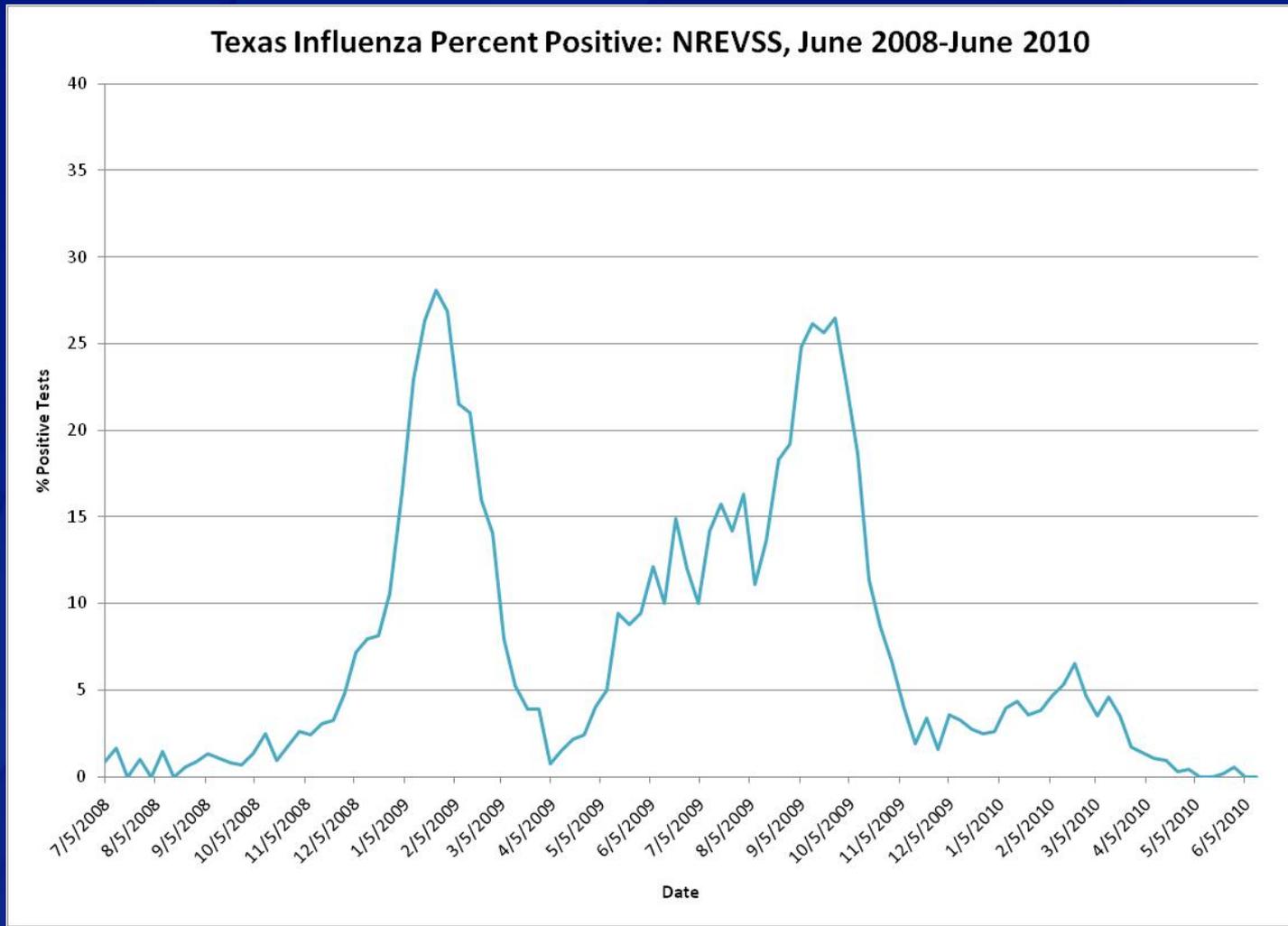
NREVSS: Texas

□ 64 participating labs from 52 cities

- Limited data from 1990
- 27 report flu
- 2008-2009
 - 85,709 tests, 12490 pos = 14.6%
- 2009-2010
 - 128,344 tests, 16643 pos = 13.0%

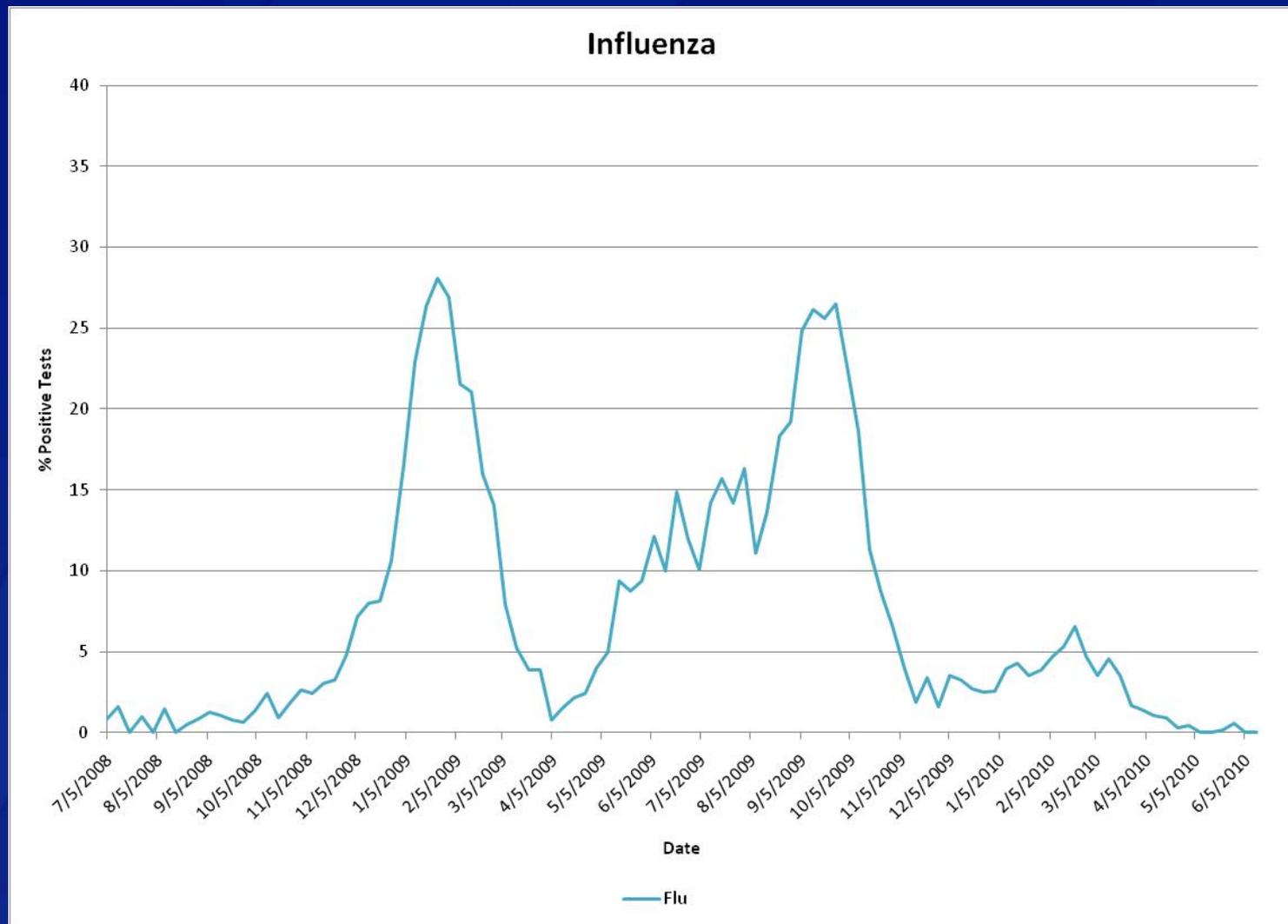
Virus	# labs reporting (2009)
RSV	53
Influenza	27
Rotavirus	21
Respiratory Adenovirus	10
HPIV 1-4	10
hMPV	5
Enterovirus	4
Rhinovirus	4
Enteric Adenovirus	2

Texas Influenza Trends (NREVSS)



Unpublished Data

Texas Respiratory Virus Trends (NREVSS)



Unpublished Data

Summary

❑ NREVSS

- Passive surveillance system
- Specimen-based
- Information on circulating respiratory and enteric viruses

❑ Influenza

- Supplements U.S. WHO surveillance
- Trends in influenza subtypes and other contributing pathogens

Limitations

❑ **Generalizability**

- Not population based
- Insufficient representation of certain geographic regions
- No demographic information

❑ **Specimen-based reporting**

❑ **Some delays in reporting**

Participate in NREVSS

- ❑ Uniform reporting structure
 - ❑ Not labor intensive
 - ❑ Epidemiological information and support
 - ❑ Better regional representation
-
- ❑ Contact: NREVSS@cdc.gov



Thank You!
jmutuc@cdc.gov

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333

Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: cdcinfo@cdc.gov Web: www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

National Center for Immunization & Respiratory Diseases

Division of Viral Diseases, Epidemiology Branch



Continuing Education Disclosures

- ❑ **Requirements for Successful Completion:**
 - **Complete registration form.**
 - **Sign in.**
 - **Attend entire educational activity.**
 - **Complete evaluation.**

Continuing Education Disclosures

- ❑ **Commercial Support**
 - **This educational activity received no commercial support.**
- ❑ **Disclosure of Conflict of Interest**
 - **The speakers and planning committee members have disclosed no conflict of interest.**
- ❑ **Non-Endorsement Statement**
 - **Accredited status does not imply endorsement by the Department of State Health Services, Continuing Education Services, Texas Medical Association, or American Nurses Credentialing Center of any commercial products displayed in conjunction with an activity.**
- ❑ **Off Label Use**
 - **If applicable, speakers will clearly delineate any off label use of FDA drugs or devices.**