

## Cough, Cough, Sneeze, Wheeze: Update on Respiratory Disease

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## INFLUENZA SURVEILLANCE

### Influenza Surveillance Activities

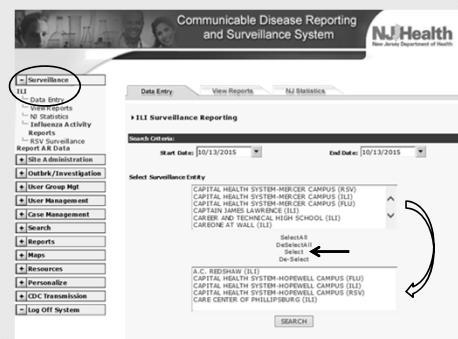
- Influenza-like illness (ILI)
  - ED Visits
  - Long term care
  - Providers (ILINet, IISP)
- Influenza cases confirmed by testing
  - PHEL
  - Commercial laboratories
  - Acute care facilities
- Specific groups
  - Pediatric influenza

### Surveillance Systems

- CDRSS
  - ILI Module - Schools, LTCF, and EDs; Rapid flu & RSV
  - Positive influenza tests
  - Pediatric Influenza
- EpiCenter - ED visit and admission data
- CDC systems
  - ILINet/IISP (outpatient), 122 City (deaths)
- Other – LTCF Outbreaks

### CDRSS ILI Module

- ED ILI data is entered by NJDOH from EpiCenter
- Schools & LTCF report into the module
  - Should have their own user name and password to enter data directly (eliminates faxing and data entry)
  - Letters sent out this fall offering entities to sign up
  - Any LHD can have access to ILI Module and view/download data
    - Request through CDRSS helpdesk or by emailing [InfluenzaAdvisoryGroup@doh.state.nj.us](mailto:InfluenzaAdvisoryGroup@doh.state.nj.us)



REPORT TYPE	COLUMN A	COLUMN B
Nursing Home	# Nursing Home Residents	# with Influenza like Illness on Surveillance Date
School	Total # of Students	# Absent on Surveillance Date
Hospital	# Patients Encountered on Surveillance Date	# Patients Diagnosed with Influenza like Illness
RSU	Total # of Tests	# Positive/CI/RSU
PHU	Total # of Tests	# Positive/CI/PHU

Please Note: Reporting dates and times whose values are displayed in grey are uneditable, please contact DHSS staff to change these values

Report Date: 10/13/2015 12:00:00 AM

Report Type	Facility Name	City	County	Total #	# Reported	Prevalence Symptoms	Comments (Optional)
Hospital ILI	CAPITAL HEALTH SYSTEM-ROPERELL CAMPUS	TRENTON	MERCER	18	0	UNKNOWN RESPIRATORY GASTROINTESTINAL	
Hospital RSU	CAPITAL HEALTH SYSTEM-ROPERELL CAMPUS	TRENTON	MERCER			Not Applicable	
Hospital PHU	CAPITAL HEALTH SYSTEM-ROPERELL CAMPUS	TRENTON	MERCER	3	0	UNKNOWN RESPIRATORY GASTROINTESTINAL	
School	A.C. REDSPAN	NEW BRUNSWICK	MIDDLESEX			UNKNOWN RESPIRATORY GASTROINTESTINAL	
Nursing Home	CARE CENTER PHILLIPSBURG	PHILLIPSBURG	WARREN			UNKNOWN RESPIRATORY GASTROINTESTINAL	

Communicable Disease Reporting and Surveillance System

**CDRSS SURVEILLANCE REPORT**  
ILI REPORT BY COUNTY  
10/13/2015

Surveillance Date/Time	Facility Name	Facility Type	Reporting County	Test Method	Number Reported	Prevalence Symptoms
<b>ATLANTIC</b>						
Transect Week: 41						
10/13/2015 12:00 AM	ATLANTICARE REGIONAL MEDICAL CENTER - CITY CAMPUS (FLU)	HOSPITAL	ATLANTIC	PCR	12	0.00%
10/13/2015 12:00 AM	ATLANTICARE REGIONAL MEDICAL CENTER - ROSSER CAMPUS (FLU)	HOSPITAL	ATLANTIC	PCR	0	0.00%
10/13/2015 12:00 AM	ATLANTICARE REGIONAL MEDICAL CENTER - HENRIK CAMPUS (FLU)	HOSPITAL	ATLANTIC	PCR	18	0.00%
10/13/2015 12:00 AM	BAKERS MEMORIAL HOSPITAL (FLU)	HOSPITAL	ATLANTIC	PCR	0	0.00%
10/13/2015 12:00 AM	ABERDEEN MEMORIAL LTC	NURSING HOME	ATLANTIC	PCR	98	0.00%

## Influenza Lab Reporting NJAC 8:57 – 1.7 (Labs)

- Positive influenza laboratory reports are required to be reported CDRSS
- ELR labs\*
  - Report all positive tests – rapid, culture, PCR
  - Aggregate rapid data in ILI Module
- Manual entry laboratories
  - Enter Culture and PCR only
  - Aggregate rapid data in ILI Module

\*Electronic laboratory reporting – labs have a direct electronic feed into CDRSS

## Influenza Reporting/Investigation (LHD/HCP)

- Influenza (AH3, AH1, B and 2009 H1N1)
  - ELR - CONFIRMED/E-CLOSED
  - Manual entry - RUI/PENDING (not always)
  - No investigation needed – close cases (exceptions- next slide)
- ELR reported (AH5 or AH7)
  - RUI/PENDING
  - Require investigation

## Influenza Reporting/Investigation (LHD/HCP)

- Conduct investigation if
  - Influenza positive in a child less than 18 years of age who has been admitted to the ICU or who has died
    - <http://nj.gov/health/flu/professionals.shtm>
  - The laboratory report is indicative of a novel strain of influenza (e.g., AH5, AH7, A unsubtypeable).
  - The LHD should obtain information about the case, including a clinical description, travel history, and other risk factors.
- Case reports in CDRSS which do not fall into one of the above criteria **DO NOT** need to be investigated by the LHD.

## NJDOH Influenza Report

**Respiratory Virus Surveillance Report<sup>1</sup>**  
 New Jersey Department of Health  
 Communicable Disease Service  
 Week ending January 17, 2015 (MMWR week 2)

**SYNOPSIS**

**Influenza Activity Level<sup>2</sup>**

State Activity Week ending 1/17:  
**HIGH**  
 Current week Last year: **HIGH**

Regional <sup>3</sup> Data	
Northwest	HIGH
Northeast	HIGH
Central West	HIGH
Central East	HIGH
South	HIGH

<http://nj.gov/health/flu/fluiinfo.shtml>

## Report Additions

**INFLUENZA LABORATORY REPORTS BY COUNTY**

Counts represent total positive specimens from week ending October 10, 2015 to current MMWR week

Source: CDRSS

Frequency	RESULT				
	Influenza A - Typing not performed	Influenza A 2009 H1N1	Influenza A H3	Influenza B	Total
ATLANTIC	2	0	0	0	2
BERGEN	1	0	4	0	5
BURLINGTON	2	0	1	0	3
CAMDEN	0	0	0	1	1
HUDSON	0	0	0	1	1
HUNTERDON	0	0	1	0	1
MORRIS	4	0	0	0	4
OCEAN	2	0	0	0	2
PASSAIC	0	1	0	0	1
<b>Total</b>	<b>11</b>	<b>1</b>	<b>6</b>	<b>2</b>	<b>20</b>

**FLUENZA LABORATORY REPORTS BY REGION**

Counts represent total positive specimens week ending October 10, 2015 to current MMWR week

Source: CDRSS

REGION	Table of REGION by RESULT				
	Influenza A - Typing not performed	Influenza A 2009 H1N1	Influenza A H3	Influenza B	Total
Central East	6	0	0	0	6
Central West	0	0	1	0	1
Northeast	1	0	4	1	6
Northwest	0	1	0	0	1
South	4	0	1	1	6
<b>Total</b>	<b>11</b>	<b>1</b>	<b>6</b>	<b>2</b>	<b>20</b>

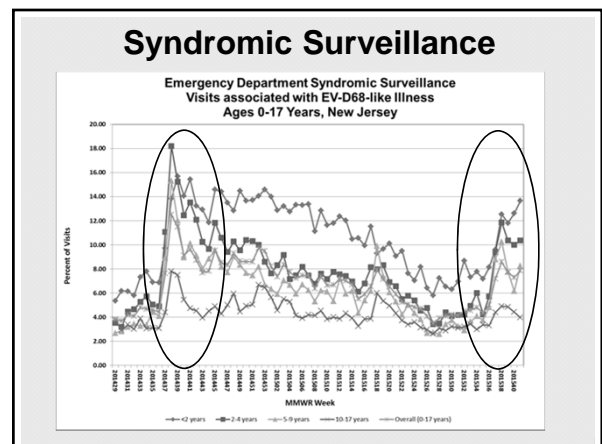
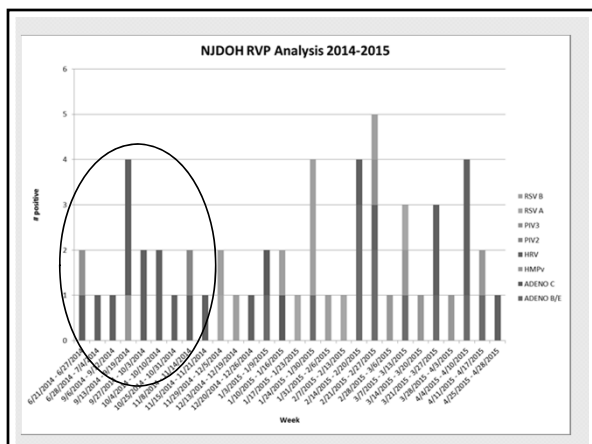
## Report Additions

Influenza-Associated Pediatric Mortality<sup>10</sup>

Influenza season	Number of Pediatric Influenza Deaths Reported to CDC	
	NJ	US (includes NJ)
2010-2011	4	123
2011-2012	1	35
2012-2013	7	171
2013-2014	6	108
2014-2015	1	146
2015-2016 (YTD)	0	0

## Outbreak Guidance (LTCF and School/Daycare)

- All outbreaks are immediately reportable
- Review guidance for criteria on OB criteria and response
  - One confirmed influenza test in LTCF = confirmed OB
  - Confirmed OB = antiviral prophylaxis of whole facility
  - Exclusion criteria for schools (24 hours fever free)
- LTCF and School/Daycare Guidance
  - [http://www.state.nj.us/health/flu/documents/outbreak\\_prevention.pdf](http://www.state.nj.us/health/flu/documents/outbreak_prevention.pdf)
  - <http://www.nj.gov/health/cd/documents/Guidelines%20for%20Outbreaks%20in%20School%20Settings.pdf>





## Top Questions



- What's the flu season going to be like?
- Is this vaccine going to match?
- Should I get the quadrivalent or trivalent vaccine?
- Do I really have to provide prophylaxis to the entire facility for a confirmed influenza outbreak?

## NOVEL INFLUENZA

### Novel Influenza A

- In June 2007, Novel Influenza A was added to the nationally notifiable disease list
- Novel influenza A viruses under surveillance
  - H5N1 "Avian Influenza"
  - 2009 H1N1 "Swine Influenza"
  - H3N2 "Swine Influenza"
  - H7N9 "Avian Influenza"
  - H10N8 "Avian Influenza"
  - H1N1 "Swine Influenza"
  - H5Nx "Avian Influenza"

### Avian Influenza (AI) Viruses

- Type A viruses
- Natural reservoir is wild waterfowl
  - Birds carry virus in respiratory tract and intestines
  - Does not usually cause illness in wild birds
  - May cause severe disease in domesticated birds
- Can survive at low temperatures and low humidity for days to weeks
- Can survive in water

### Avian Influenza

- Mild to severe illness and death
- Not easily transmitted person to person
- Often associated with exposure to poultry/birds
- Treatment – same as seasonal flu
- Not in seasonal flu vaccine formulation

### LPAI vs. HPAI (Birds)

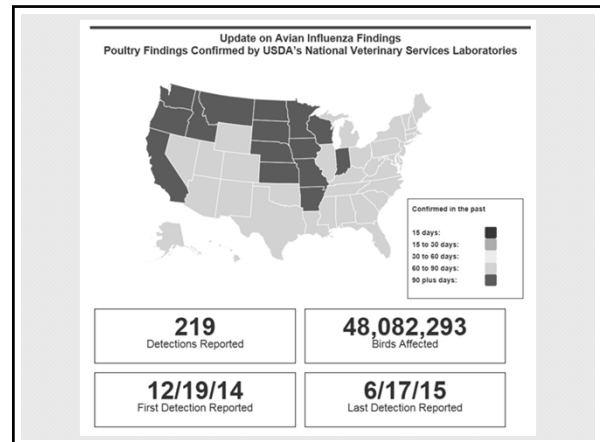


- Low Pathogenic Avian Influenza (LPAI)
  - Does not usually cause illness in wild birds
  - May cause mild disease in poultry
  - Cause poultry outbreaks worldwide
  - Can evolve into HPAI
- Highly Pathogenic Avian Influenza (HPAI)
  - Usually does not cause illness in wild birds
  - Usually causes high mortality in domestic poultry
  - Examples: H5, H7

## HPAI H5Nx

- US Detections began December 2014
  - H5N2, H5N8, H5N1
- Detected in 21 states
  - Pacific, Central, and Mississippi Flyways
  - 15 states with outbreak in domestic poultry/captive birds
  - 6 states with detections in wild birds only
- NJ has not been impacted
- No human illness to date

<http://www.cdc.gov/flu/avianflu/h5/index.htm>



## Public Health Response

- CDC/NJDOH lead for human illness
- Reporting and testing of ill individuals
- Administration of antiviral post exposure prophylaxis
- Monitoring of exposed individuals (NEW!)
  - List provided by USDA through CDC
  - 10 days from last exposure
  - Active monitoring of exposed
    - Via phone on day 1 and 10
    - Self observation day 2 through 9
      - Call public health if symptoms develop

## Avian Influenza – H5N1

- 700 cases/15 countries since 2003
  - Largest number from Indonesia, Vietnam, and Egypt
  - No US cases
  - Canada – January 2014 – Travel associated
- Cases linked to infected poultry
- Severe illness reported
- Case Fatality Rate – 60%
- Does not efficiently transmit person to person

## Avian Influenza- H7N9

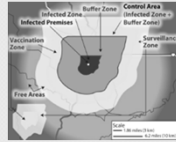
- First report China 2013
- Last large outbreak June 2015 – 15 cases
  - Cases identified in October 2015
- Cases linked to infected poultry
- Less severe illness than H5N1
  - Case fatality rate ~30%

## Response Animals

- USDA/NJDA lead agency – illness in animals
- Ongoing AI surveillance
- Outbreaks in animals
  - Quarantine – restrict movement
  - Eradicate - depopulation
  - Monitor region
  - Disinfect affected locations
  - Test to confirm virus-free

## Response Animals

- Outbreak identified/confirmed
- Zones created around area
  - Depopulation of inner rings
    - Foam or CO Gas
  - Surveillance and prevention of outer rings
- Establishment of control zones to prevent spread
- On-site composting and burial



## Public Health Guidance

- Risk to general public – LOW
- Highest risk to impacted farm and outbreak response workers
- Same reporting and testing as other novel influenza A viruses
  - ILI plus exposure
- Monitoring of all exposed staff for 10 days post work
- Antivirals are being recommended for workers

## Swine Influenza

- Type A influenza virus
  - Four main types isolated in pigs: H1N1, H1N2, H3N2, and H3N1
- Similar to human influenza, swine flu viruses change constantly
- Pigs can be infected by avian influenza and human influenza viruses as well as swine influenza viruses
- If an influenza viruses from different species infect pigs, the viruses can reassort (i.e. swap genes) and new viruses can emerge



## Influenza A (H3N2) Variant Virus (Swine)

- First identified in pigs in 2010
- First identified in humans in July 2011
- Since August 2011 – 345 cases
  - Majority of cases in 2012 (n=309)
  - 20 hospitalizations; 1 death
- Mostly children and young adults
- Relatively mild illness
- Limited human to human transmission
- Associated with prolonged exposure to pigs

## Influenza A (H3N2) Variant Virus

- Illness generally mild with little hospitalizations
- Most infections associated with prolonged exposure to pigs
- Limited human-to- human spread but not sustained



## Middle East Respiratory Syndrome Coronavirus (MERS CoV)

### Coronavirus (CoV)

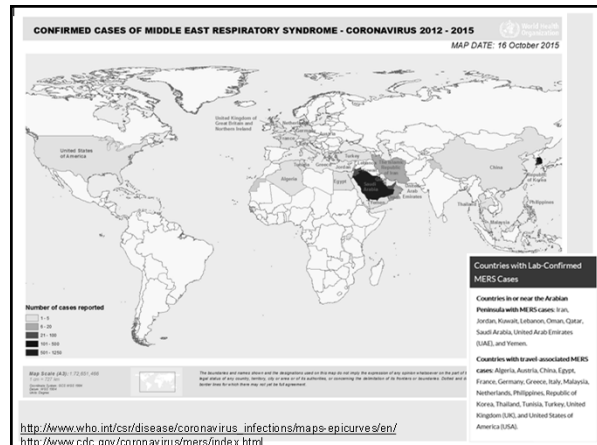
- Common virus
- Mild to moderate upper-respiratory tract illnesses (common cold)
- Can be associated with GI illness
- CoV was the cause of SARS (severe acute respiratory syndrome)
- Incubation periods longer than common cold
- Usually circulate in the winter and spring

### CoV

- Prevalent in humans and domestic animals (cats, dogs, birds)
- SARS was a novel coronavirus believed to originate from civet cats
- Current novel coronavirus is believed to have originated in bats

### Middle Eastern Respiratory Syndrome (MERS- CoV)

- Identified in humans in April 2012
- Initial circulation Arabian peninsula (Jordan, Saudi Arabia, and Qatar)
- Case count as of 10/12/15
  - 1,595 cases; 571 deaths
- Travel related cases in other countries
- Clusters with person to person spread have been documented (not sustained)



### MERS in NJ

- NJ – no confirmed cases
- Since June 2013, NJDOH has received 31 suspect reports.
  - 30/31 tested at PHEL and/or CDC – all negative
  - 1/31 no tested improper specimen submission



### Questions?