

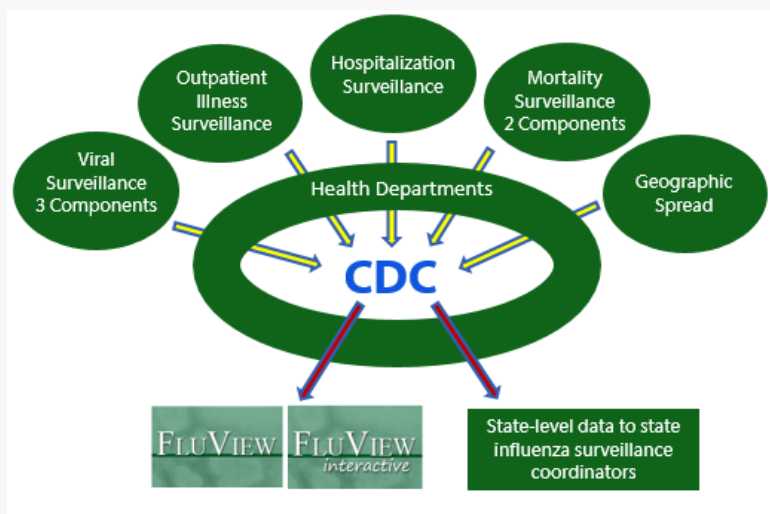


U.S. Influenza Activity Update – 2018-2019 Season*

2019 National Adult and Influenza Immunization Summit
May 16, 2019

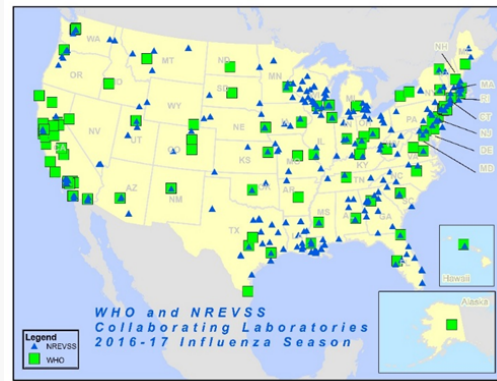
* As of April 27, 2019

U.S. Influenza Surveillance System



Virologic Surveillance

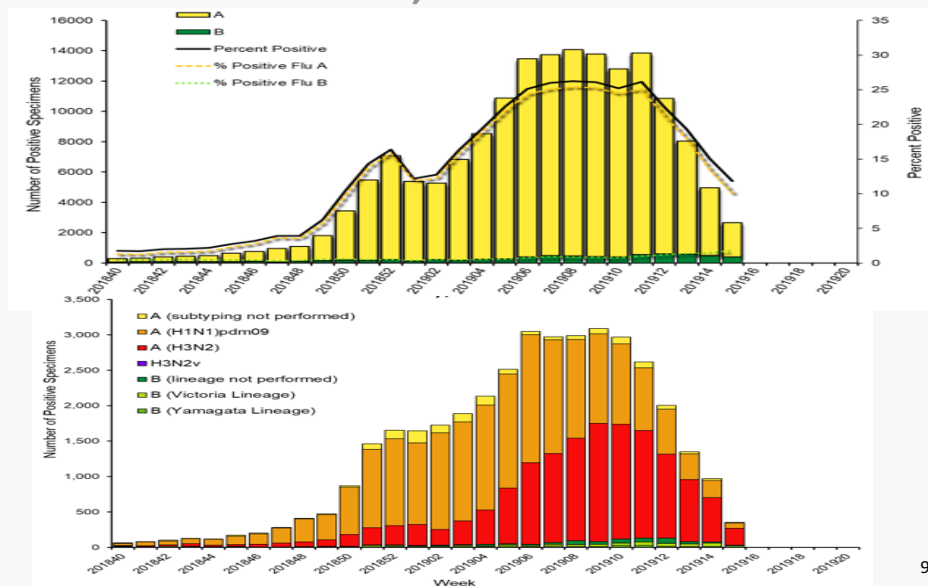
- U.S. World Health Organization (WHO) Collaborating Laboratories
 - Primarily public health laboratories (~100)
- National Respiratory and Enteric Virus Surveillance System (NREVSS)
 - Clinical laboratories (~ 300)
 - Run by DVD; they share influenza data
- Novel Influenza A Virus Reporting



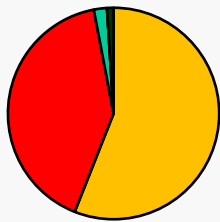
Influenza Positive Tests Reported to CDC by U.S. Clinical and Public Health Laboratories, 2018-2019 Season

Clinical Laboratories

Public Health Laboratories



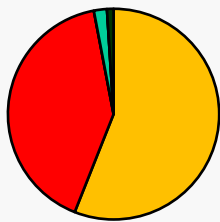
Influenza Virus Co-circulation, 1997-1998 through 2018-2019



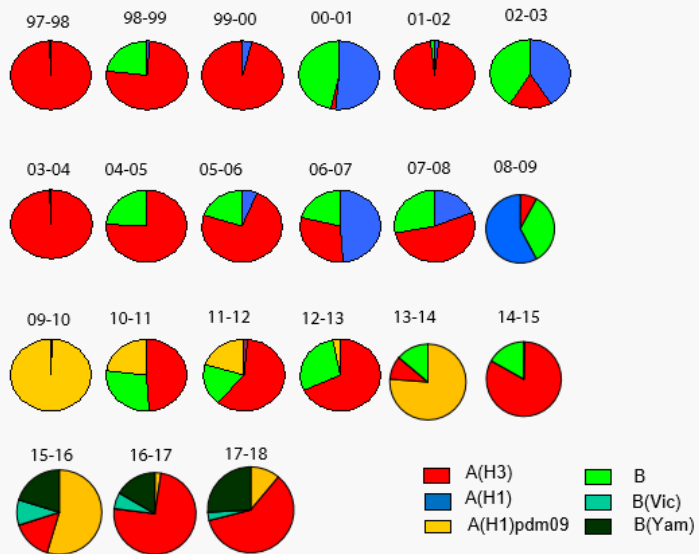
2018-2019
 H1 – 56%
 H3 – 41%

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Influenza Virus Co-circulation, 1997-1998 through 2018-2019

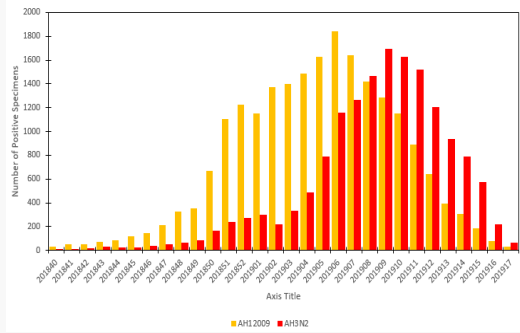


2018-2019
 H1 – 56%
 H3 – 41%



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Increasing H3 virus circulation, 2018-2019

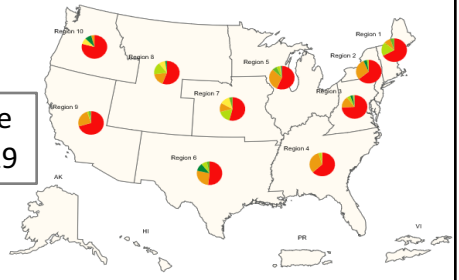


- A (subtyping not performed)
- A (H1N1)pdm09
- A (H3N2)
- B (lineage not performed)
- B (Victoria Lineage)
- B (Yamagata Lineage)

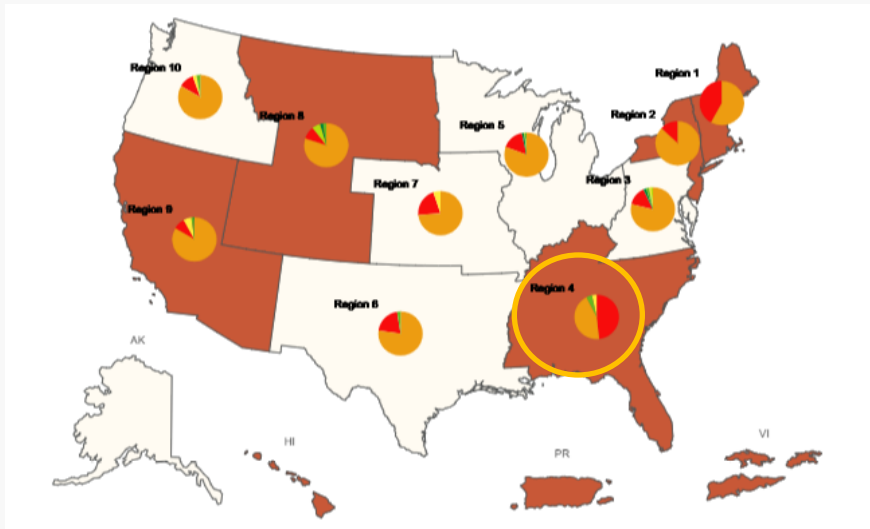


Last 3 weeks of 2018

Mid/Late April 2019

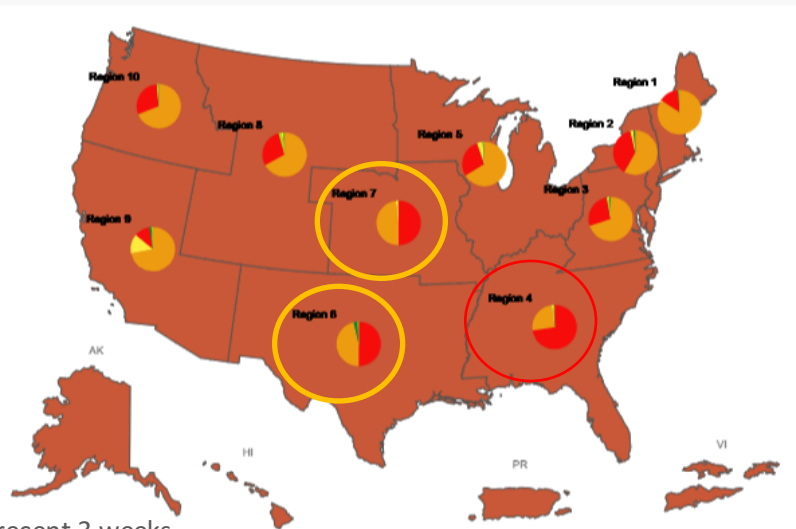


Increasing H3 Virus Circulation, Early December 2018*

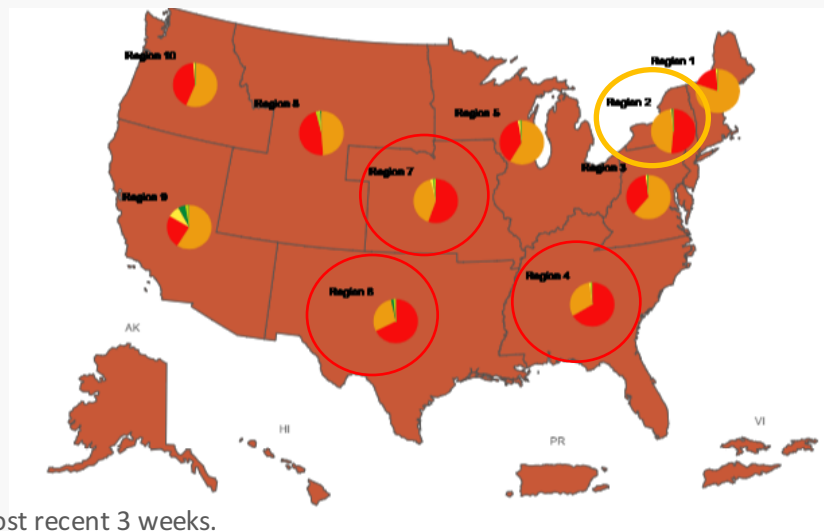


* Data for most recent 3 weeks.

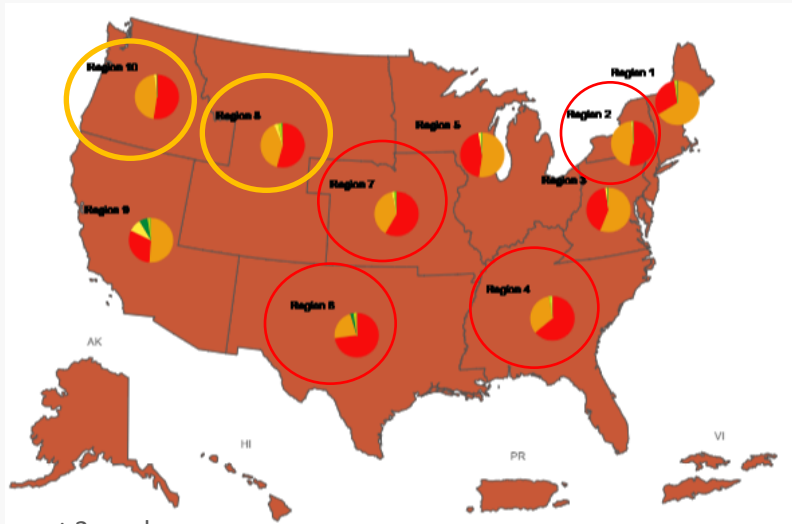
Increasing H3 Virus Circulation, Early February 2019



Increasing H3 Virus Circulation, Mid-February 2019

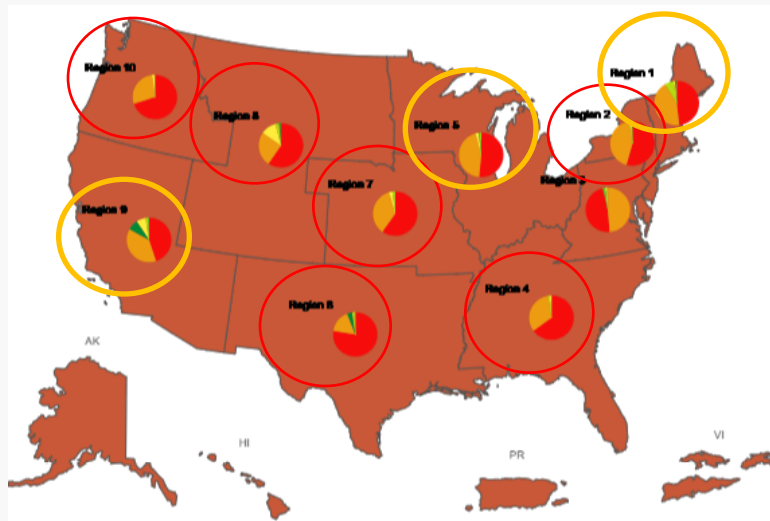


Increasing H3 Virus Circulation, Late February 2019



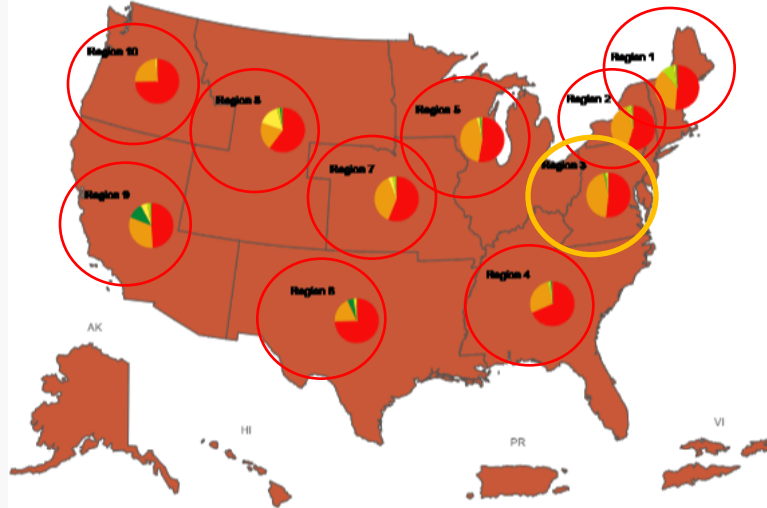
* Data for most recent 3 weeks.

Increasing H3 Virus Circulation, Early/Mid-March 2019



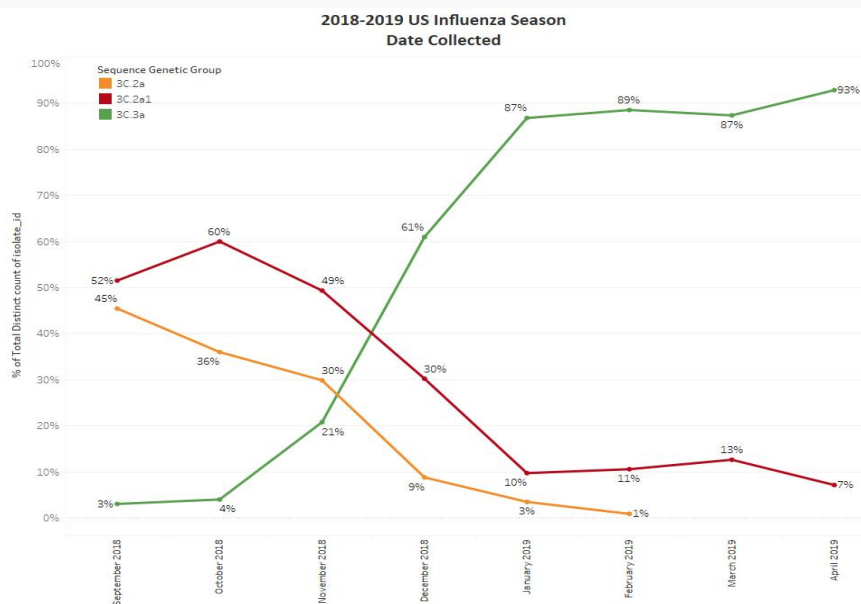
* Data for most recent 3 weeks.

Increasing H3 Virus Circulation, Mid/Late March 2019



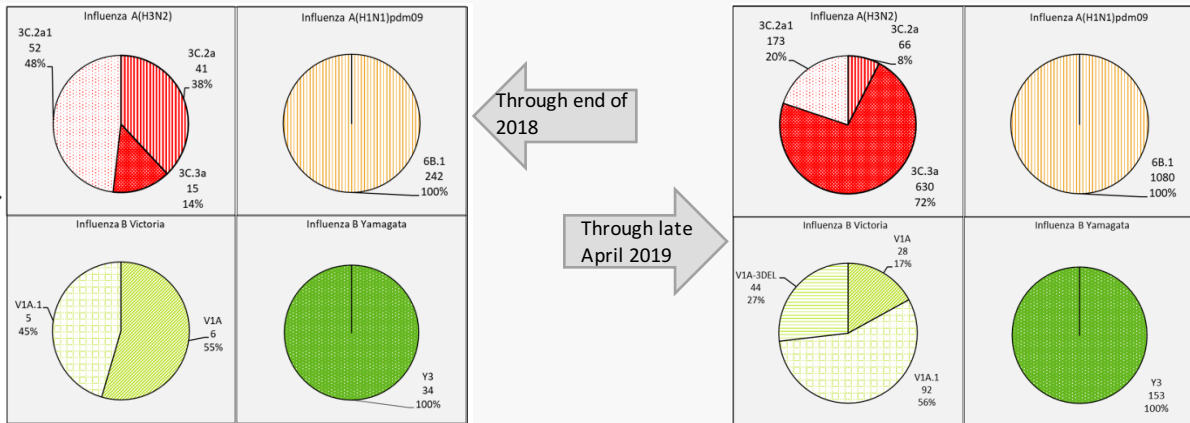
* Data for most recent 3 weeks.

Changing Proportion of H3 Genetic Clades/Sub-clades

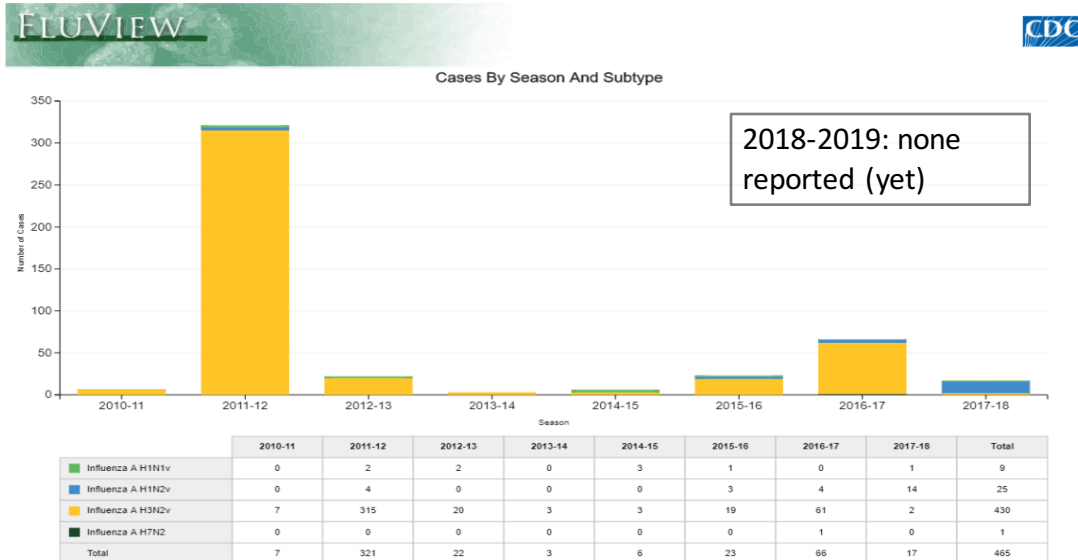


Viral Strain Surveillance

- Public health labs send subset of influenza positives to CDC
 - Full genome sequencing
 - Detailed antigenic characterization
 - Antiviral resistance testing
 - Development of vaccine candidate strains as needed



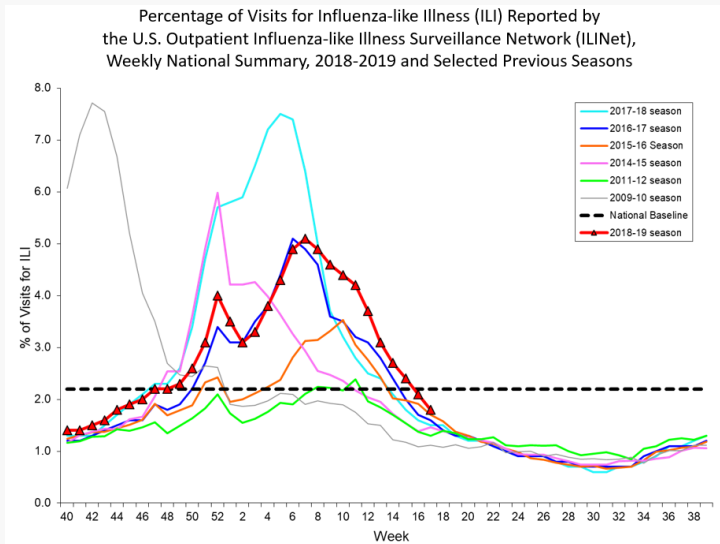
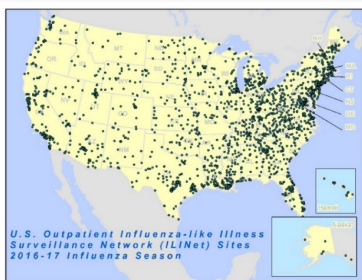
Novel Influenza A Reporting



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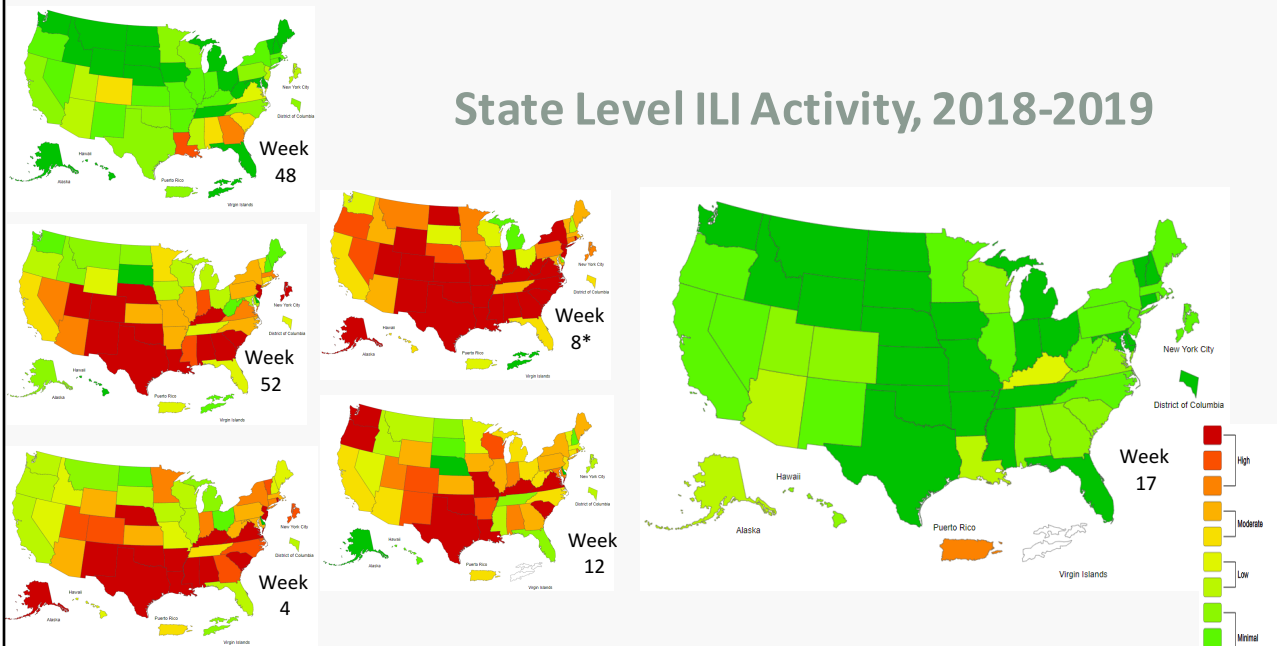
Outpatient Influenza-Like Illness (ILI) Surveillance: ILINet

- > 2,500 outpatient providers report weekly
 - ~1.2 million visits/week
- Monitor ILI
 - Fever $\geq 100^{\circ}\text{F}$ AND cough and/or sore throat



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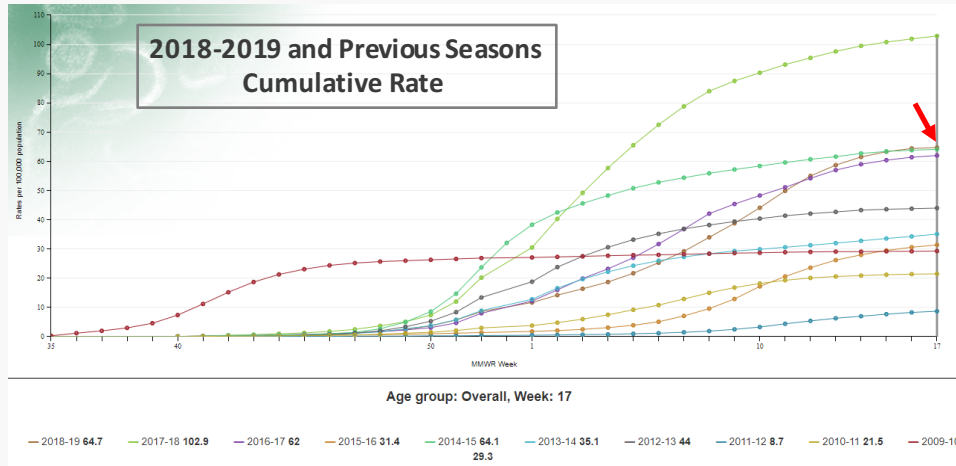
State Level ILI Activity, 2018-2019



* Peak number of jurisdictions experiencing high ILI (33 states, NYC)

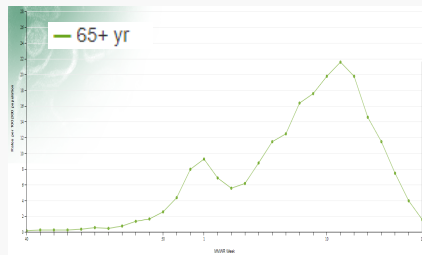
Hospitalization Surveillance: FluSurv-Net

- Population-based surveillance for laboratory-confirmed influenza-related hospitalizations
 - 13 states (70 counties)
 - ~ 9% US population under surveillance

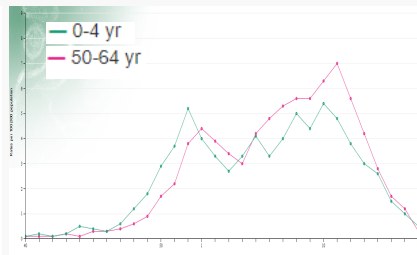


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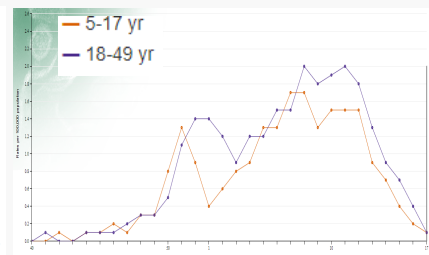
Hospitalization Surveillance: FluSurv-Net Weekly Rate by Age Group



65 + years
Cumulative Rate: 216.6/100,000



0-4 years
Cumulative Rate: 74.0/100,000



5-17 years
Cumulative Rate: 21.0/100,000

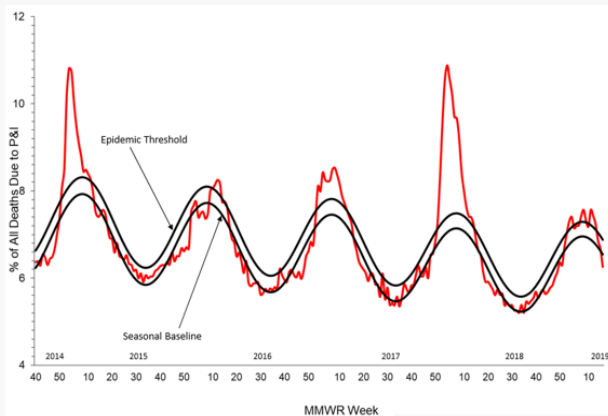
50-64 years
Cumulative Rate: 80.0/100,000

18-49 years
Cumulative Rate: 26.0/100,000

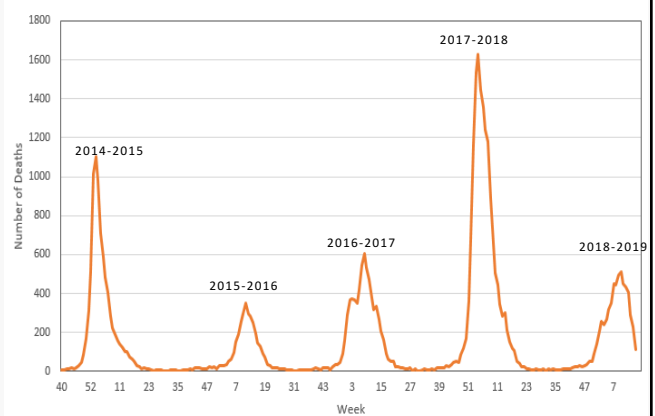
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Mortality Surveillance: National Center for Health Statistics Mortality Reporting System

Percent of Deaths Due to Pneumonia or Influenza



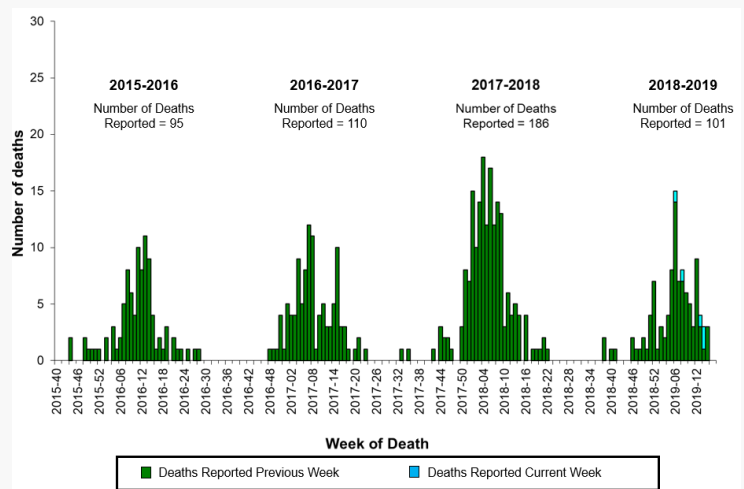
Counts of Deaths Due to Influenza



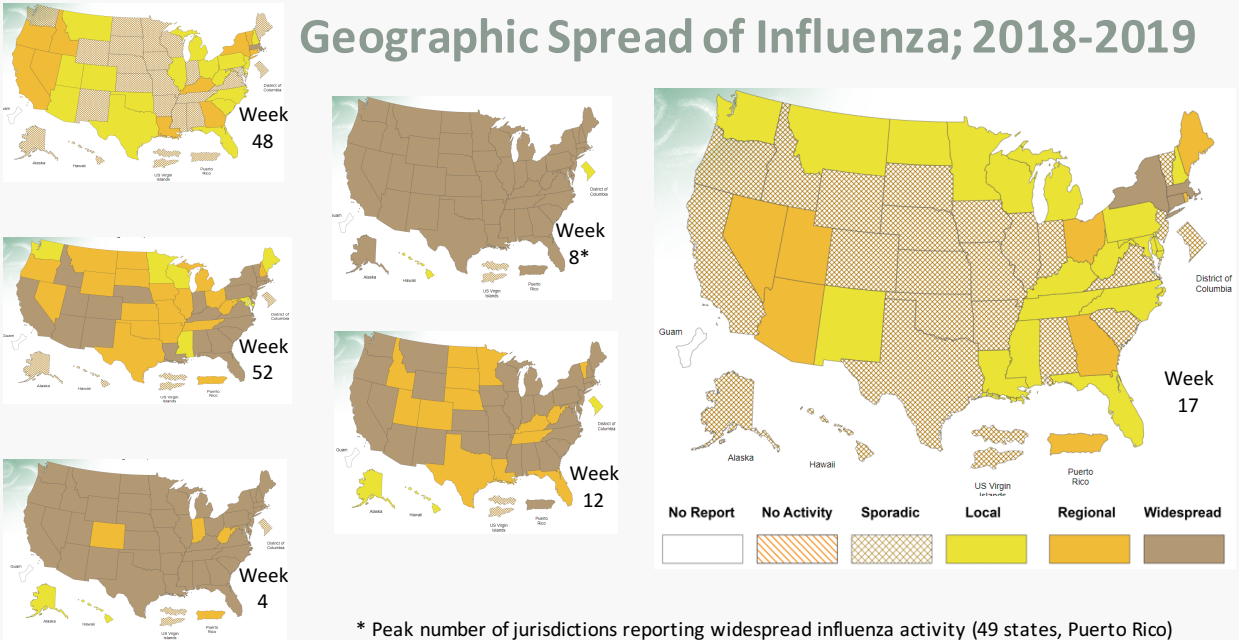
Data through the week ending April 20, 2019, as of May 2, 2019

Mortality Surveillance: Influenza Associated Pediatric Deaths

- Deaths in children with laboratory confirmed influenza and clinically compatible illness
- Frequency of underlying conditions and vaccination status are similar to previous seasons
 - 40-60% previously healthy
 - ~20% vaccinated



Geographic Spread of Influenza; 2018-2019



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Summary...aka How was this flu season unusual?

- Two distinct waves of influenza A activity – H1 first then H3
- Almost equal proportions of H1 and H3 by season end, but H1 wins out
- Very little B virus circulation and no later B wave
- Record breaking long season as measured by ILI activity

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- What does this all mean?

**When you've seen one flu season,
you've see one flu season!**

U.S. Influenza Surveillance Reports



<https://www.cdc.gov/flu/weekly/fluactivitysurv.htm>