

COCA Call Information

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- ❑ Webinar Link:
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2018 –2019 Influenza Season and Recommendations for Clinicians

Clinician Outreach and Communication Activity (COCA)
Webinar

emergency.cdc.gov/coca

February 5, 2019



Continuing Education for this COCA Call

All continuing education (CME, CNE, CEU, CECH, ACPE, CPH, and AAVSB/RACE) for COCA Calls are issued online through the CDC Training & Continuing Education Online system (<http://www.cdc.gov/TCEOnline/>) .

Those who participated in today's COCA Call and who wish to receive continuing education should complete the online evaluation by **March 11, 2019** with the course code **WC2922**.

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- ❑ Planners have reviewed content to ensure there is no bias. Content will not include any discussion of the unlabeled use of a product or a product under investigational use; except the following:
 - Dr. Angela Campbell will include discussion of off -label use of antiviral medications for treatment of influenza during this webinar.
- ❑ CDC did not accept commercial support for this continuing education activity.

To Ask a Question

- ❑ Using the Webinar System
 - Click the **Q&A** button in the webinar.
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- ❑ If you are a patient, please refer your questions to your healthcare provider.

At the conclusion of the session,
participants will be able to accomplish the
following:

- Summarize the current status of influenza activity in the United States;
- Discuss the circulating influenza strains seen this season and the implications for clinicians; and
- Describe the antiviral treatment recommendations for patients with influenza.

Today's First Presenter

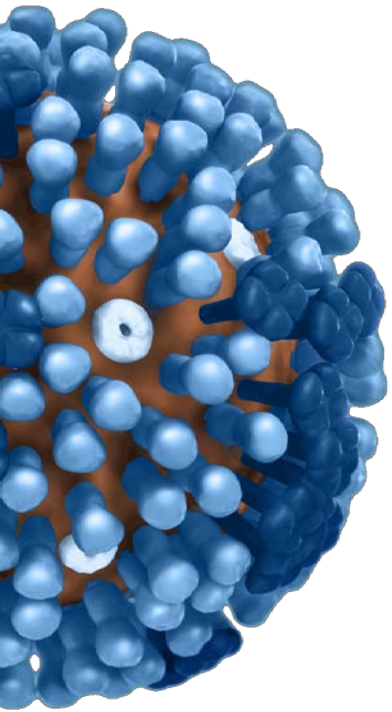


Alicia Budd, MPH
Epidemiologist
Influenza Division
National Center for Immunization and
Respiratory Diseases
Centers for Disease Control and Prevention

Today's Second Presenter



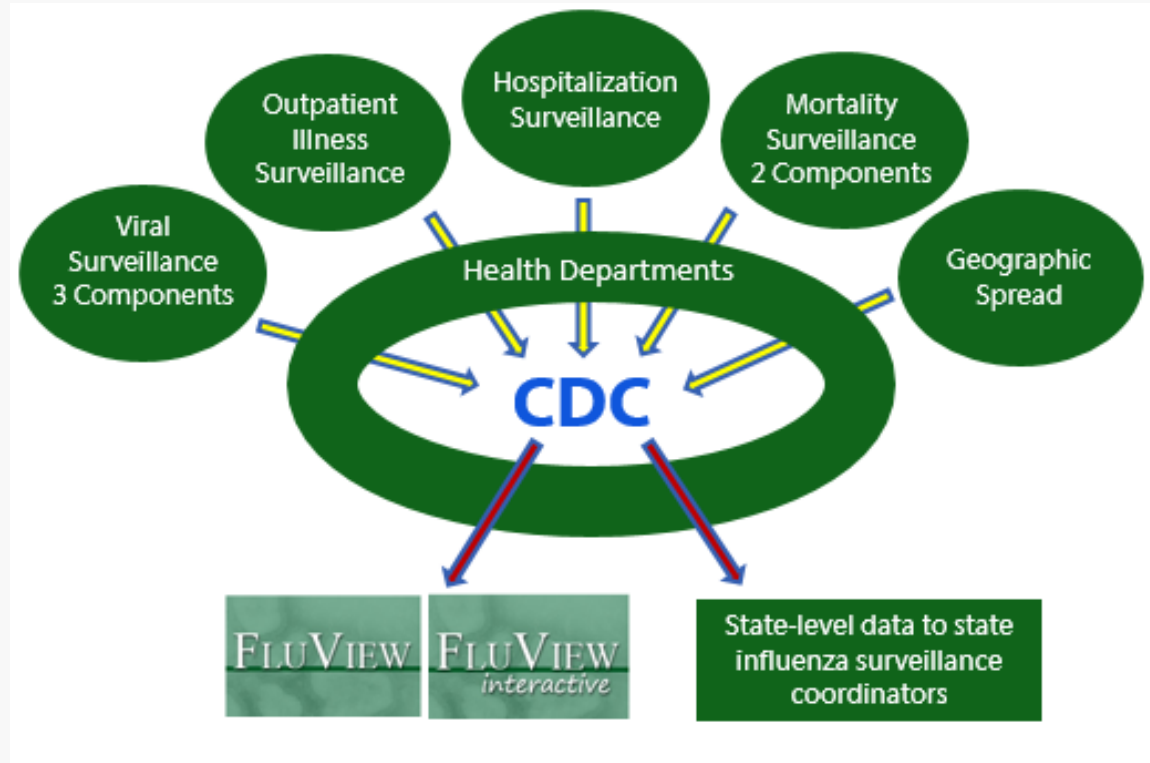
Angela Campbell, MD, MPH
Medical Officer
Influenza Division
National Center for Immunization and
Respiratory Diseases
Centers for Disease Control and Prevention



2018 – 2019 Influenza Season Activity

Activity through January 26, 2019

U.S. Influenza Surveillance System



U.S. Influenza Surveillance Reports



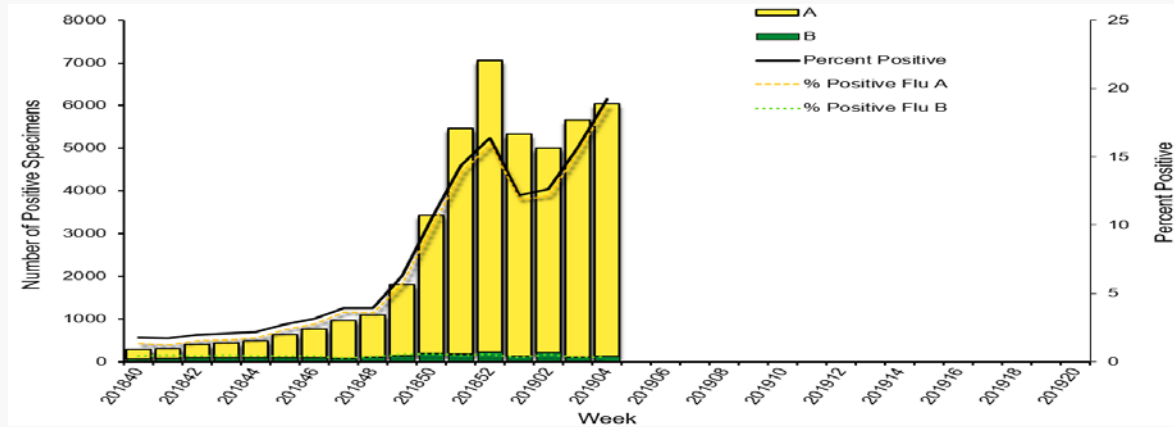
<https://www.cdc.gov/flu/weekly/fluactivitysurv.htm>

Goals of Influenza Surveillance

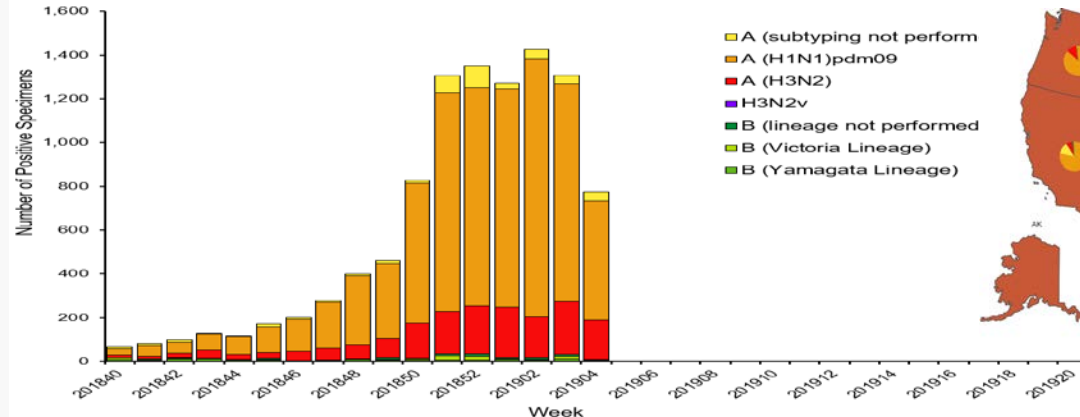
- Identify and characterize viruses/strains
- Identify viruses with pandemic potential
- Provide situational awareness
 - Describe the onset and duration of the season
 - Track geographic spread
- Monitor severity
- Describe clinical infections and those at risk
- Guide decisions for interventions

Influenza Positive Tests Reported to CDC by U.S. Clinical and Public Health Laboratories, Sept. 30, 2018 – Jan. 26, 2019

Clinical Laboratories



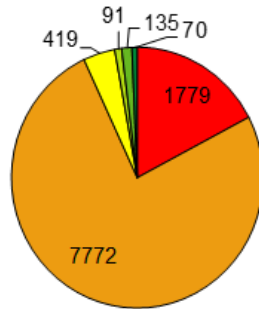
Public Health Laboratories



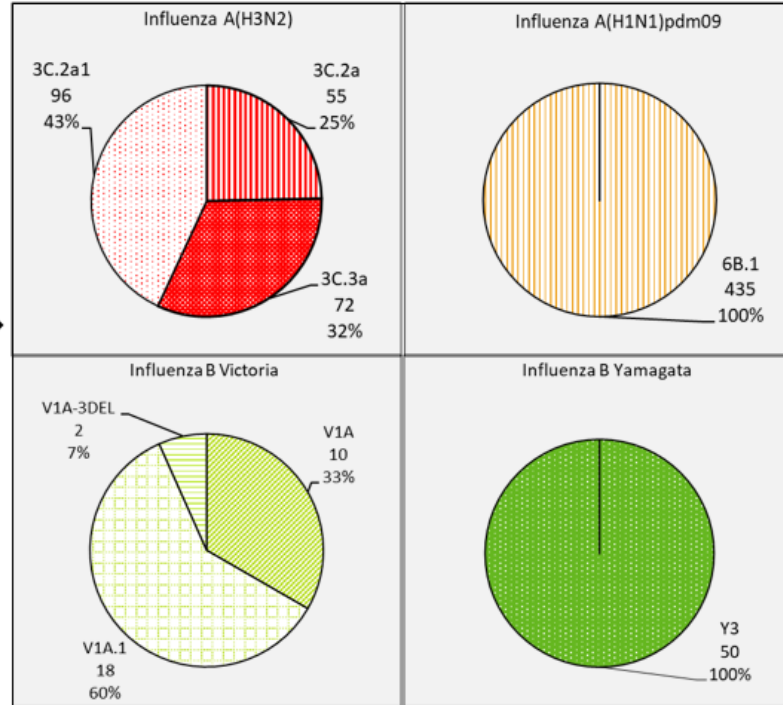
Genetic Characterization of U.S. Viruses Collected September 30, 2018 – January 26, 2019

Sequence Results, by Genetic HA Clade/Subclade, of Specimens
Submitted to CDC by U.S. Public Health Laboratories, Cumulative,
2018-2019 Season

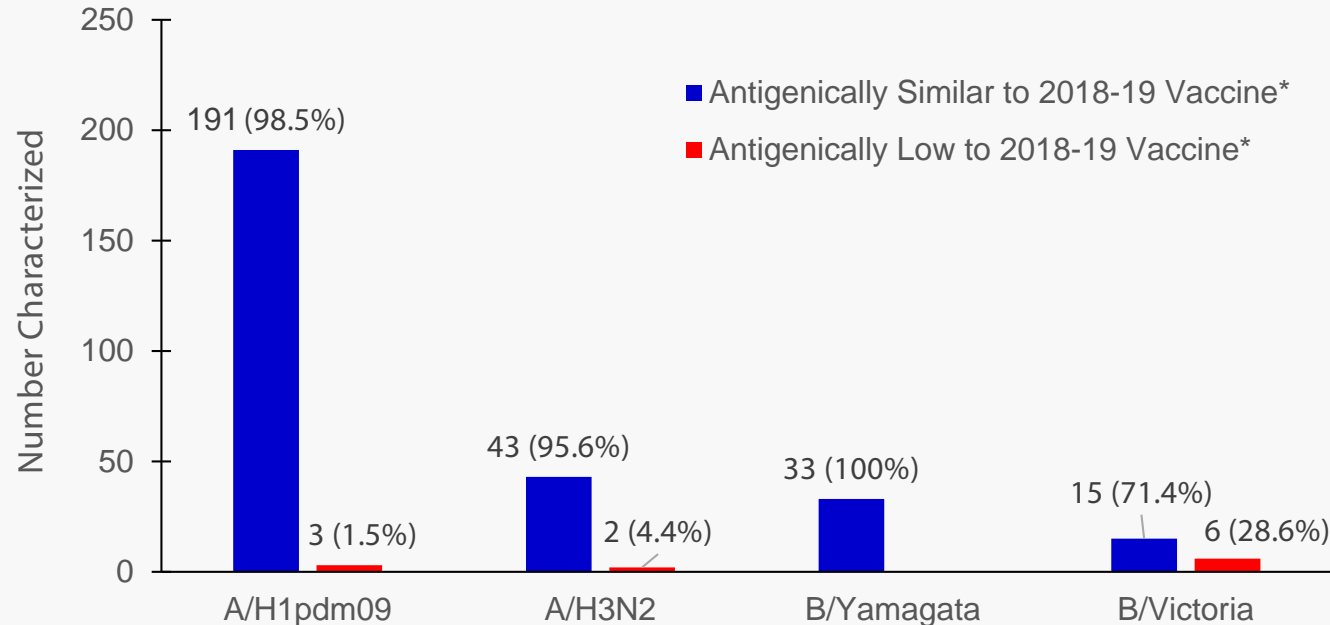
Influenza Positive Specimens Reported by
U.S. Public Health Laboratories,
Cumulative, 2018-2019 Season



- Influenza A(H3N2)
- Influenza A(H1N1)pdm09
- Influenza A(subtype unknown)
- Influenza B Victoria
- Influenza B Yamagata
- Influenza B (lineage not determined)

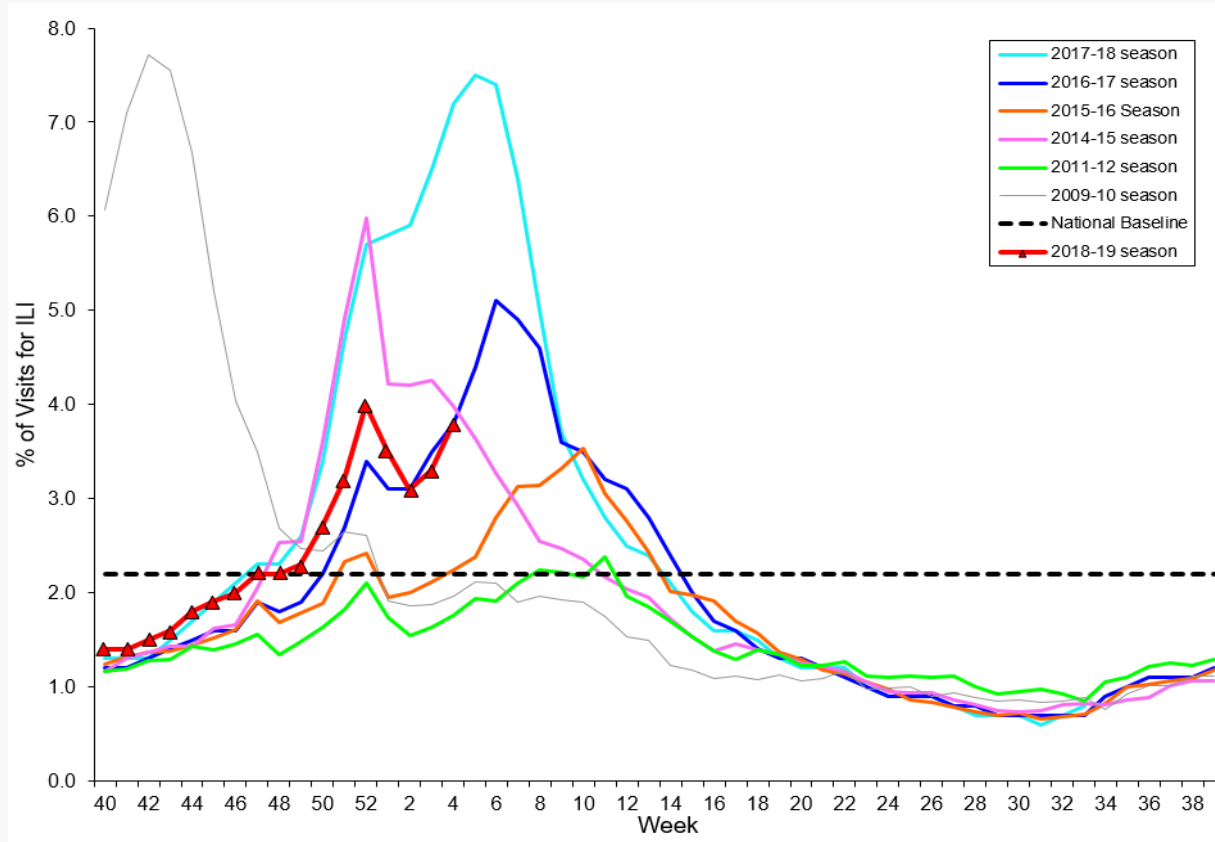


Antigenic Characterization of U.S. Viruses Collected September 30, 2018 – January 26, 2019

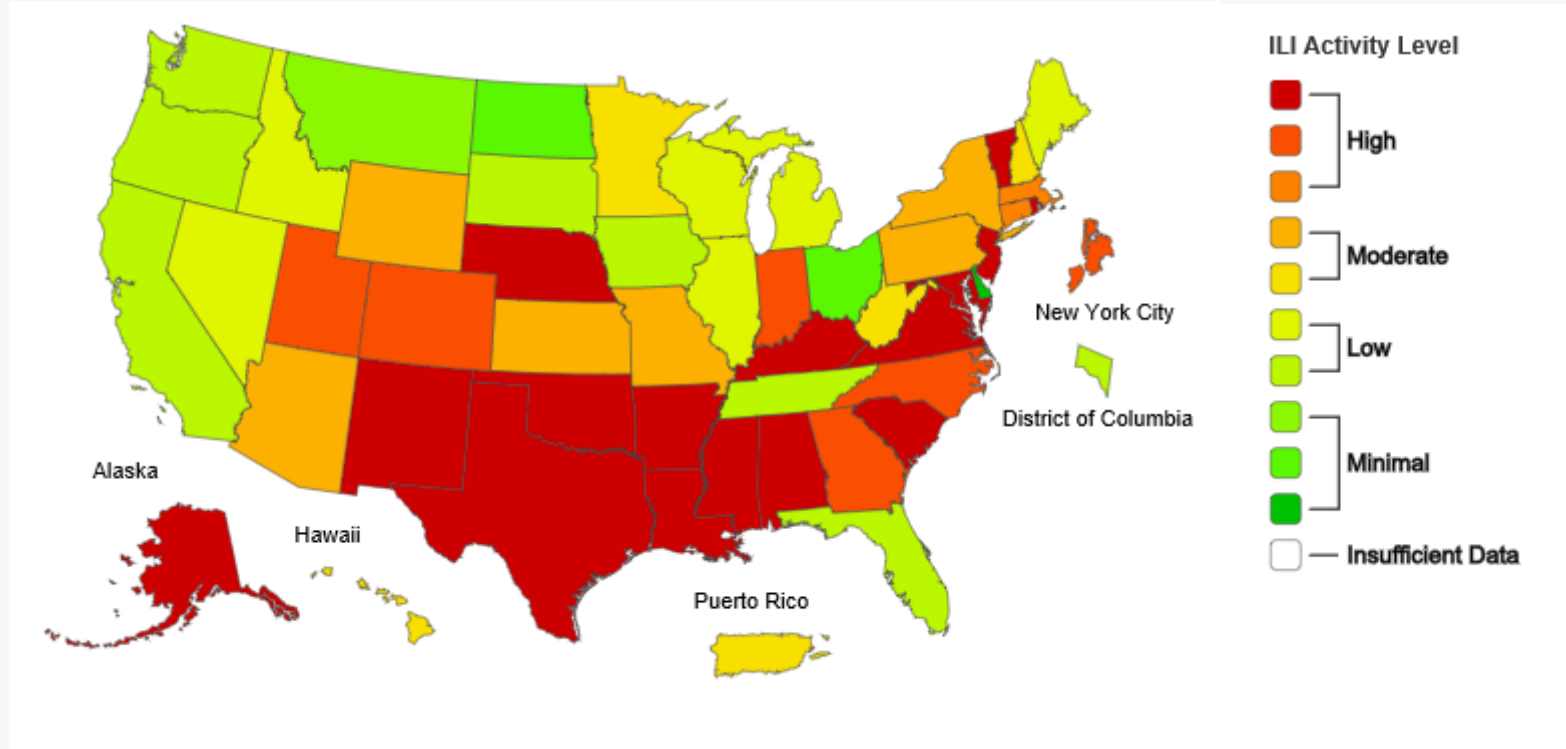


* Trivalent vaccines will contain an A/Michigan/45/2015 (H1N1)pdm09–like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)–like virus; and a B/Colorado/06/2017–like virus (Victoria lineage). Quadrivalent vaccines will contain the same three HA antigens as trivalent vaccines, plus a B/Phuket/3073/2013–like virus (Yamagata lineage).

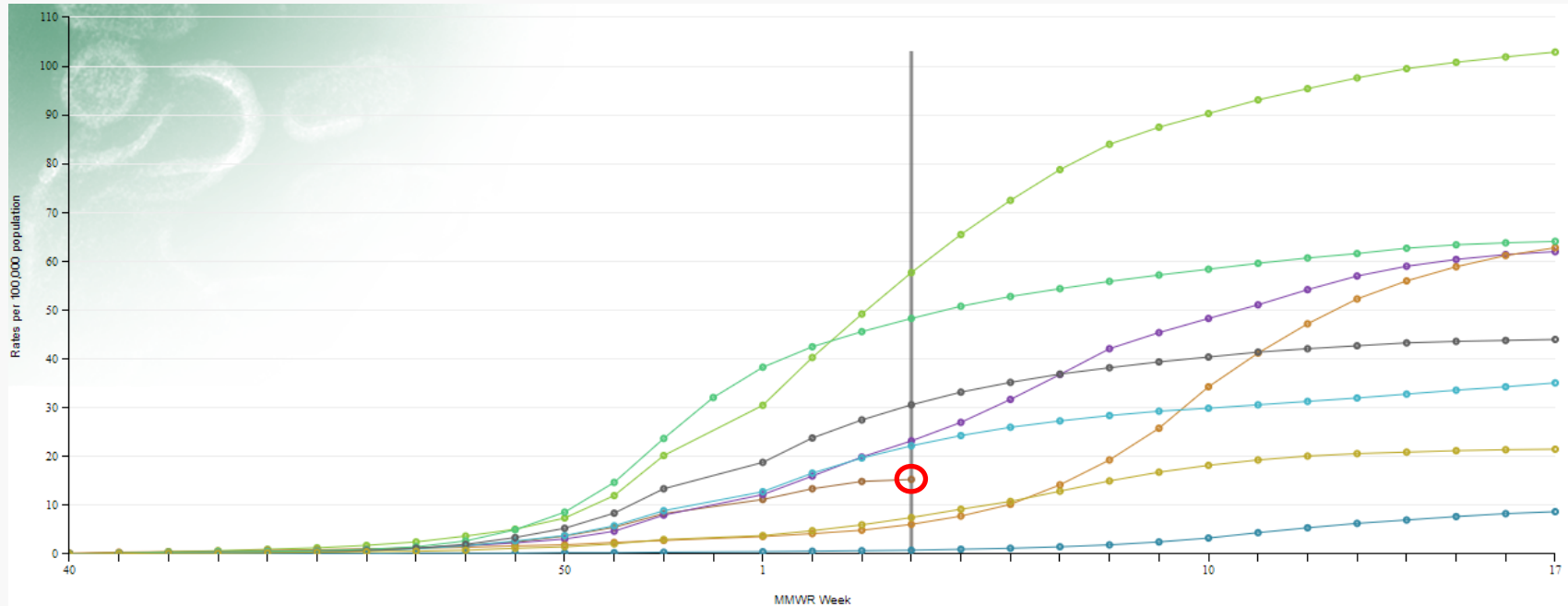
Percentage of Visits for Influenza-like Illness (ILI), 2018-19 and Selected Previous Seasons



ILI Activity Level Indicator Determined by Data Reported to ILINet, Week 4 ending Jan. 26, 2019



Laboratory Confirmed Influenza Associated Hospitalizations, Cumulative Rate per 100,000; 2018-19 and Previous 8 Seasons



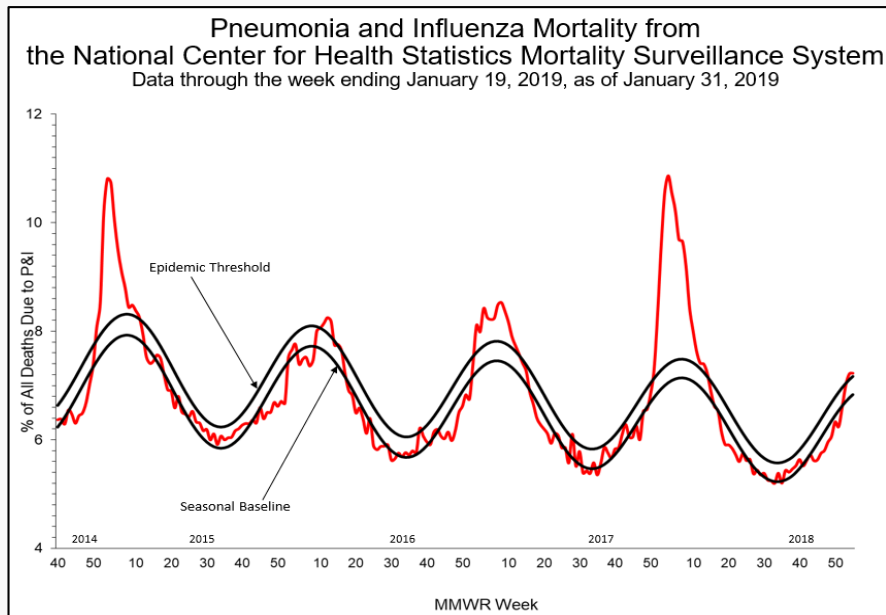
Age group: Overall, Week: 4

Rates per 100,000 by Age Group

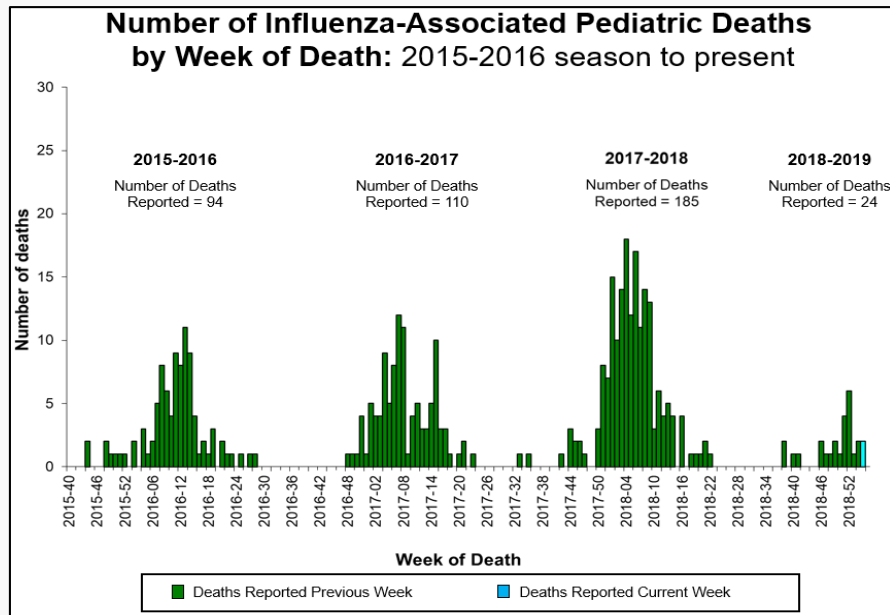
— 2018-19 15.3 — 2017-18 57.7 — 2016-17 23.2 — 2015-16 6.1 — 2014-15 48.3 — 2013-14 22.2 — 2012-13 30.6 — 2011-12 0.8 — 2010-11 7.5

Mortality Surveillance: 2018-2019 and Previous Seasons

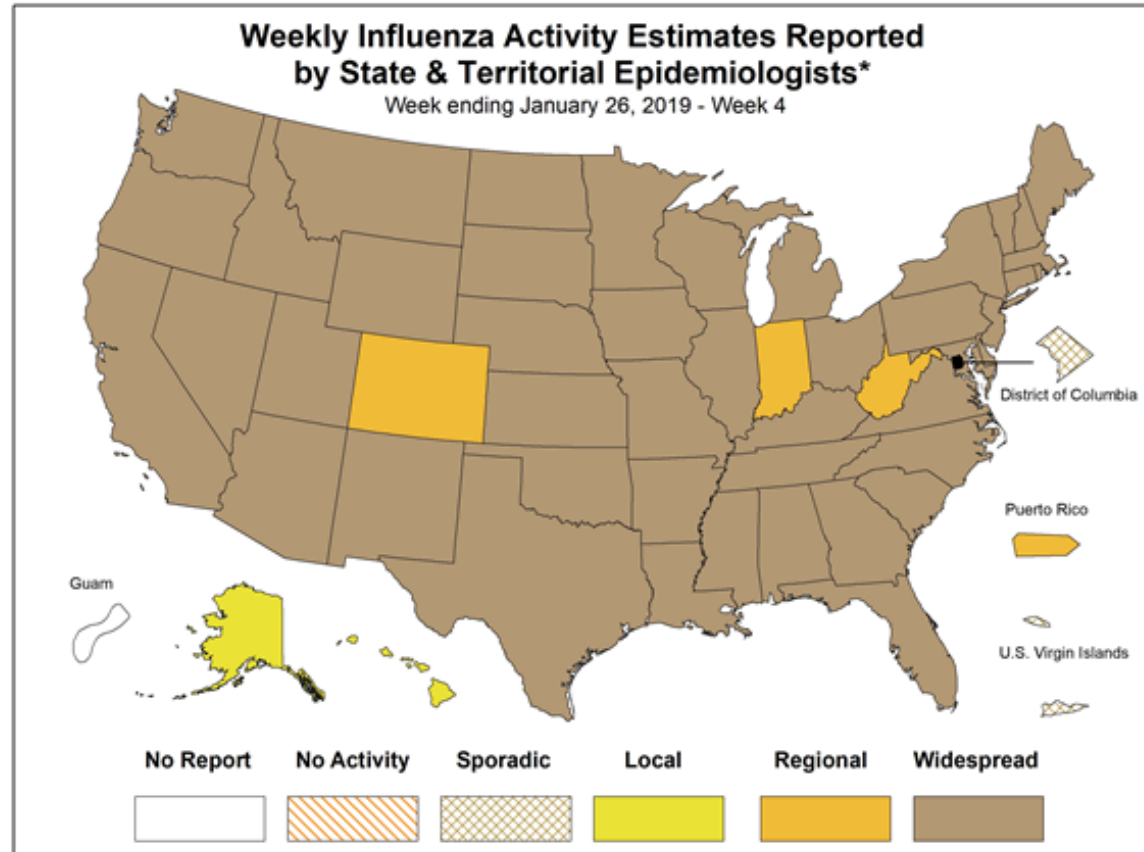
- Pneumonia and Influenza Mortality, National Center for Health Statistics**



- Deaths in Children with Laboratory Confirmed Influenza**



Geographic Spread of Influenza



* This map indicates geographic spread & does not measure the severity of influenza activity

Surveillance vs. Severity vs. Burden

Surveillance

Real time tracking of activity during the season.

- Weekly throughout the year

Severity Assessment

Compare current season surveillance data to thresholds based on past seasons' data to objectively classify season.

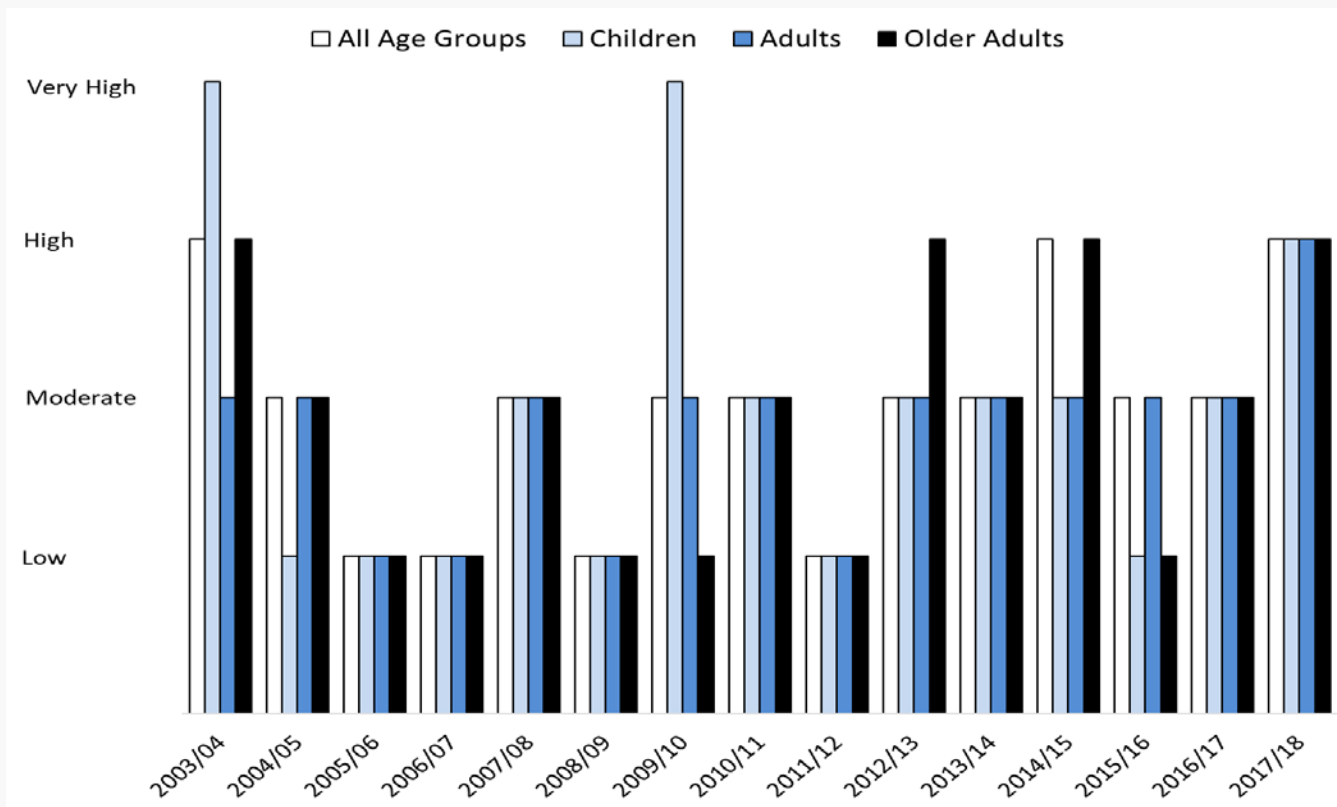
- Season overall
- Throughout the season

Burden Estimates

Mathematical modeling translates surveillance data into numbers of illnesses, hospitalizations, deaths.

- Season overall
- Throughout the season

Season Severity: 2003-04 through 2017-18



2018-2019

As of January 26, 2019, all indicators are at “low”

Burden of Influenza in the United States

2010-11 through 2017-18

2018-19 as Jan.26, 2019

Deaths: 12,000 – 79,000

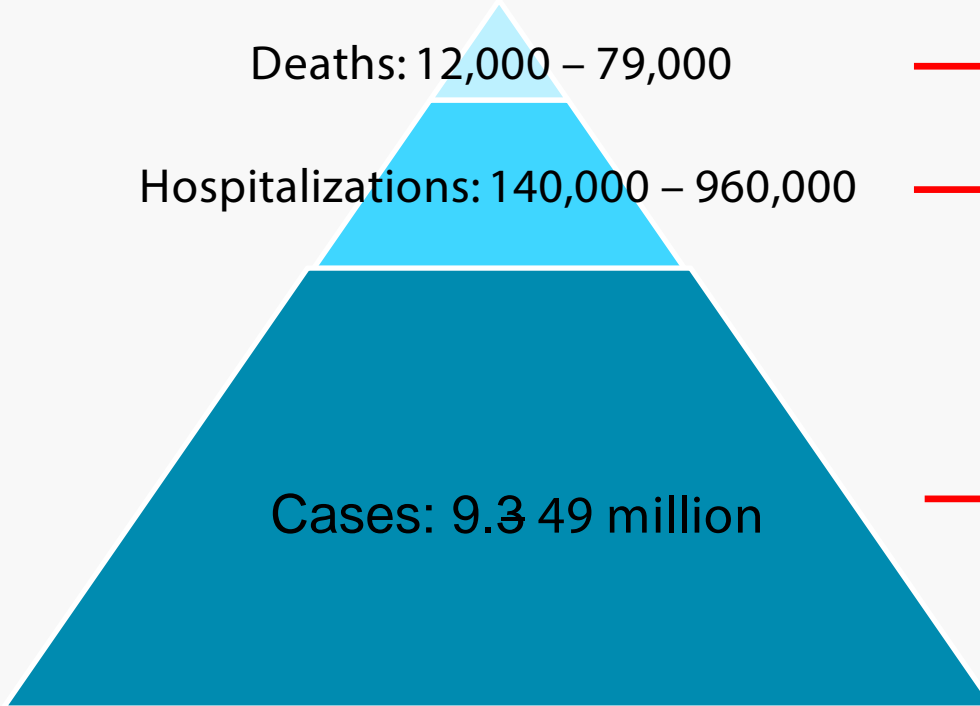
Deaths - TBD

Hospitalizations: 140,000 – 960,000

118,000 – 141,000
hospitalizations

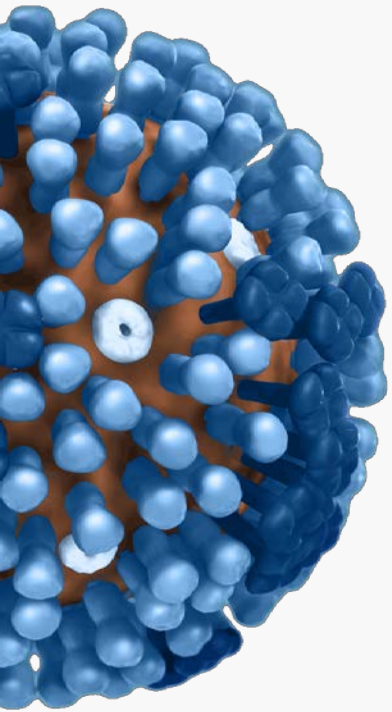
Cases: 9.3 – 49 million

10.1 – 11.7 million
illnesses

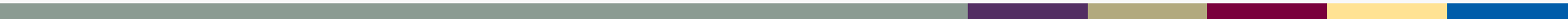


Summary: 2018-19 Influenza Season Activity as of January 26, 2019

- Influenza activity nationally is elevated and significant activity is expected to continue for several more weeks.
 - *So far*, this season has been mild compared to recent seasons.
 - Severity indicators are “low”.
 - Estimates of illnesses and hospitalizations are at the low end of the ranges seen in the past 8 seasons - but are still significant!
 - More than 10 million illnesses and 118,000 hospitalizations.
- H1N1pdm09 viruses are predominant in most areas of the country.
 - Exception – Southeastern U.S. where H3N2 viruses are most common
 - Majority of viruses characterized antigenically and genetically are similar to the cell grown reference viruses representing the 2018-19 Northern Hemisphere vaccine components.



Clinical Manifestations of Influenza



Spectrum of Influenza Virus Infection

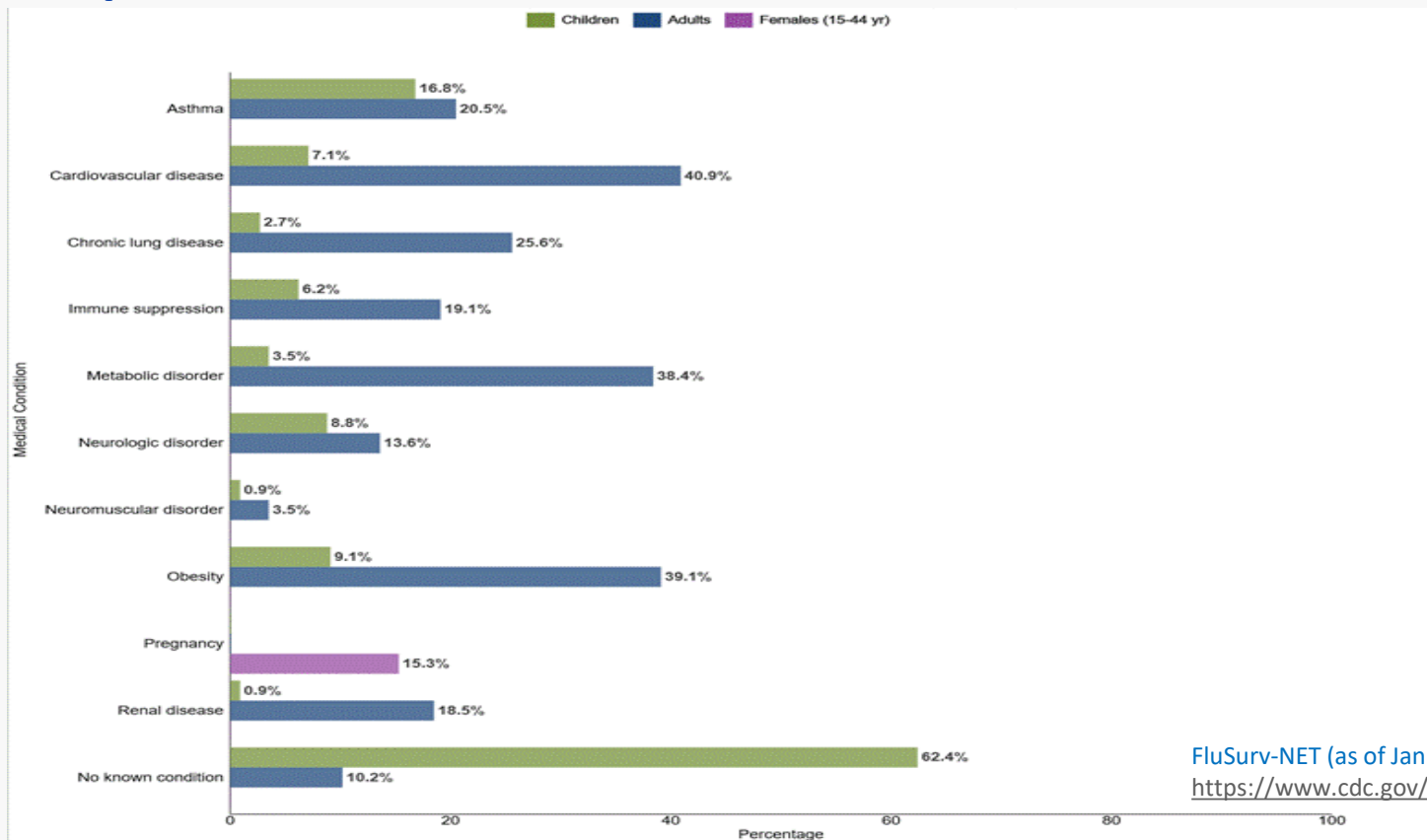
- Disease severity and clinical manifestations vary by age, host factors, immunity, virus type/subtype
 - Asymptomatic infection
 - Upper respiratory tract illness
 - Typical: abrupt onset fever, cough, chills, muscle aches, fatigue, headache, sore throat, runny nose
 - GI symptoms (more common in children)
 - Infants can have fever alone, irritability, may not have respiratory symptoms
 - Elderly and immunosuppressed may not have fever
 - Complicated illness

Groups at Increased Risk for Influenza Complications and Severe Illness

- Children <5 years old (especially <2 years old)
- Adults ≥65 years old
- People with immunosuppression
- People with chronic pulmonary, cardiovascular (excluding hypertension alone), renal, hepatic, hematologic, and metabolic disorders (including diabetes), or neurologic and neurodevelopment conditions
- Pregnant and postpartum (within 2 weeks after delivery) women
- Children and adolescents <19 years who are receiving aspirin- or salicylate-containing medications (risk for Reye syndrome after influenza virus infection)
- American Indians and Alaska Natives
- People who are extremely obese (BMI ≥40)
- Residents of nursing homes and other long-term care facilities

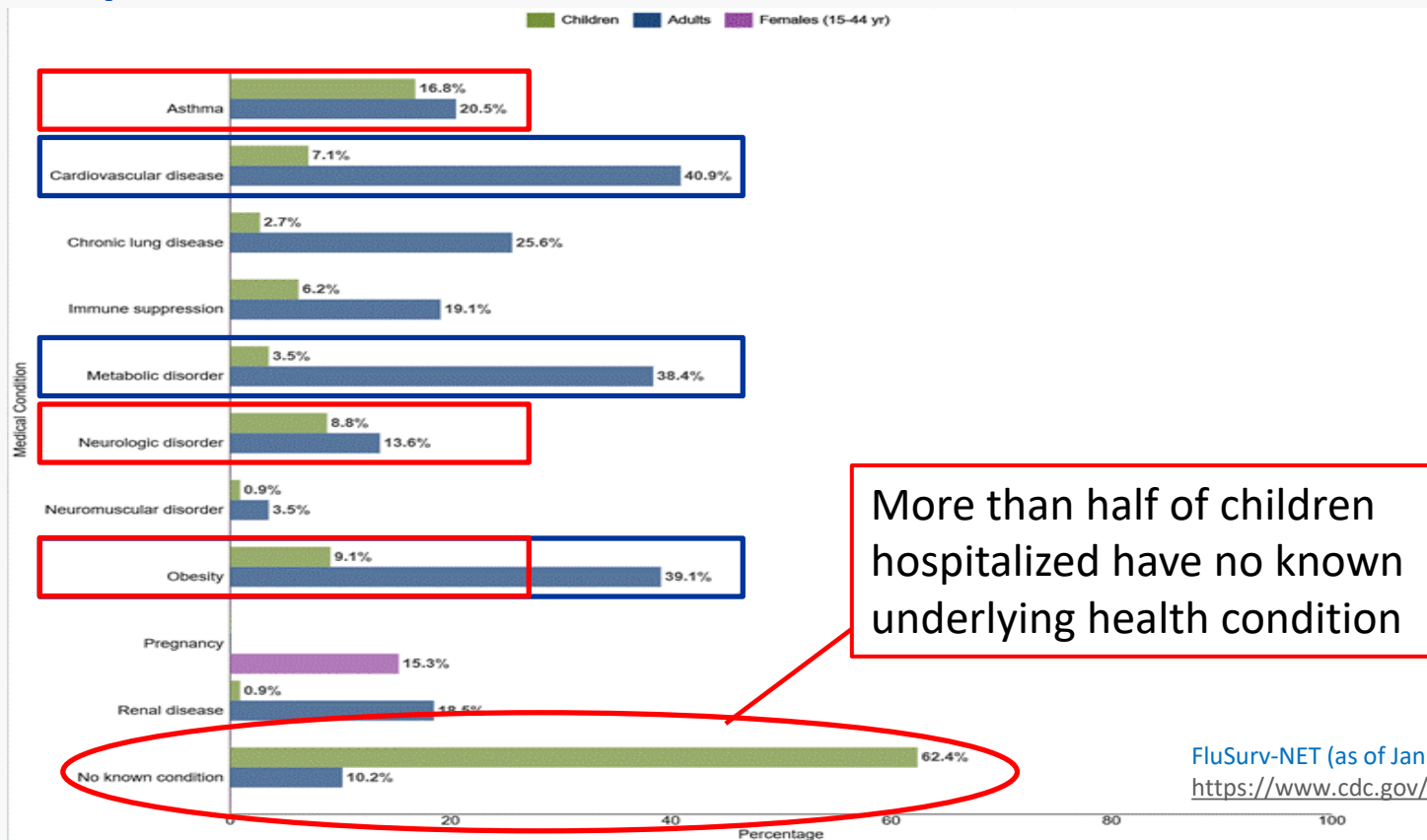


Underlying Medical Conditions among Influenza Hospitalizations



FluSurv-NET (as of Jan 26, 2019), data available at:
<https://www.cdc.gov/flu/weekly/fluactivitysurv.htm>

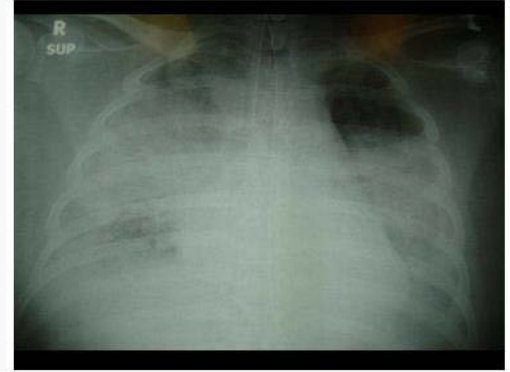
Underlying Medical Conditions among Influenza Hospitalizations

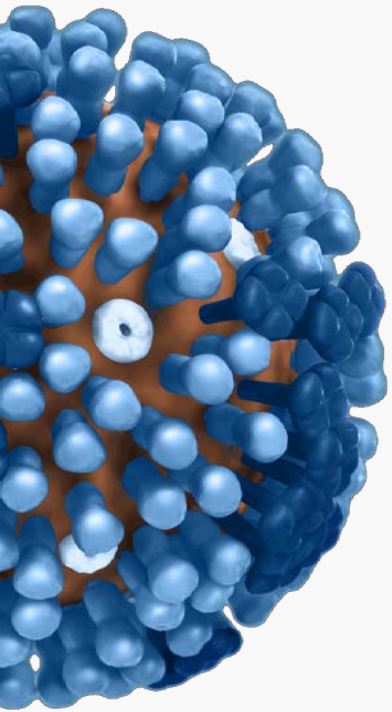


FluSurv-NET (as of Jan 26, 2019), data available at:
<https://www.cdc.gov/flu/weekly/fluactivitysurv.htm>

Influenza Complications

- Otitis media common in children, sinusitis
- Worsening of underlying chronic disease
- Dehydration
- Pneumonia (primary viral or secondary bacterial) or other respiratory (croup, bronchiolitis, respiratory failure, acute respiratory distress syndrome)
- Extra-pulmonary: renal failure, myocarditis, pericarditis, myositis/rhabdomyolysis, encephalopathy and encephalitis, Guillain-Barre syndrome, acute disseminated encephalomyelitis, sepsis, multi-organ failure
 - Sepsis is listed as a complication in up to 30% of pediatric death reports
- Bacterial co-infection: *S. aureus*, *S. pneumoniae*, and *S. pyogenes*





Influenza Vaccination and Vaccine Effectiveness

Influenza Vaccination

- The Advisory Committee on Immunization Practices (ACIP)/CDC recommend annual vaccination for everyone 6 months of age and older who do not have contraindications
- Recommended to be received by the end of October
 - As long as influenza viruses are circulating, vaccination should continue throughout flu season, even into January or later



Vaccine Formulations Available for 2018-19

- Inactivated vaccine (IIV)
 - Trivalent for ≥ 6 months
 - Quadrivalent for ≥ 6 months
 - Quadrivalent cell-culture-based for ≥ 4 years
 - Trivalent high-dose for ≥ 65 years
 - Trivalent adjuvanted for ≥ 65 years
- Recombinant protein vaccine
 - Quadrivalent for ≥ 18 years
- Live attenuated vaccine (LAIV)
 - Quadrivalent for 2-49 years



ACIP LAIV Recommendations, 2018-19



Update: ACIP Recommendations for the Use of Quadrivalent Live Attenuated Influenza Vaccine (LAIV4) — United States, 2018–19 Influenza Season

Lisa A. Grohskopf, MD¹; Leslie Z. Sokolow, MSc, MPH^{1,2}; Alicia M. Fry, MD¹; Emmanuel B. Walter, MD³; Daniel B. Jernigan, MD¹

- LAIV had not been recommended for 2016-17 or 2017-18
 - Low effectiveness vs. influenza A(H1N1)pdm09 among children 2 through 17 years old during 2013-14 and 2015-16
 - Thought due to poor fitness of the H1N1pdm09 virus in the vaccine
- In February 2018, ACIP reviewed additional data
 - Two analyses of previous seasons' data from observational studies
 - Manufacturer data on shedding and immunogenicity of new (H1N1)pdm09 vaccine virus indicating improved fitness
- **For 2018-19, LAIV4 is an option for those for whom it is appropriate**

ACIP LAIV4 Recommendations for 2018-19

- Difference in ACIP and American Academy of Pediatrics (AAP) recommendations:
 - ACIP makes no preferential recommendations for any one vaccine type when more than one is appropriate
 - AAP recommends IIV as the primary choice for children
- Recommendations share the same principle that influenza vaccination is an important preventive strategy for children



Parental Preference for IIV or LAIV for their Child among Vaccinated Children 2–17 years

National Immunization Survey-Flu (NIS-Flu), 2014–15 & 2015–16 Seasons

	2014–15 Influenza season			2015–16 Influenza season		
	n	%	95% CI	n	%	95% CI
Overall	19,027	100.0		18,384	100.0	
Prefer LAIV	4258	22.7	(21.4, 24.0)	3,961	21.7	(20.5, 22.9)
Prefer IIV	4202	22.1	(20.9, 23.5)	4142	24.7	(23.3, 26.1)
No preference	10,567	55.2	(53.6, 56.8)	10,281	53.7	(52.1, 55.2)

Bolded estimates indicate a statistically significant difference between the 2014–15 and 2015–16 season by *t*-test, $p < 0.05$.

Early Season Influenza Vaccination Coverage, Nov 2018

Figure 1. Early and End-of-Season Flu Vaccination Coverage Among Children, United States, 2014–

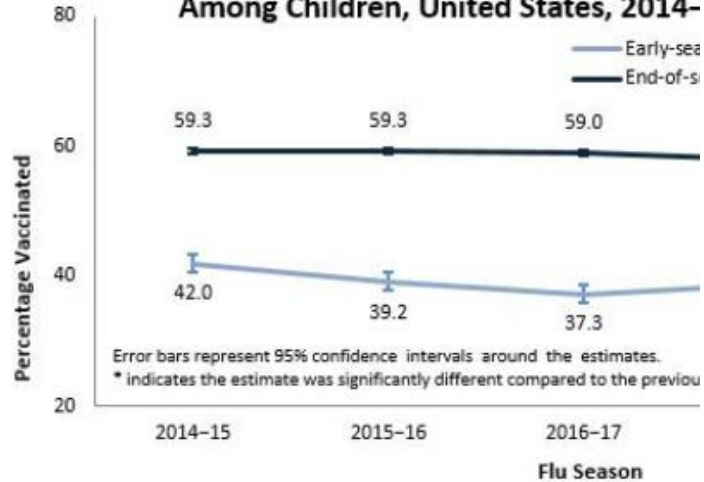
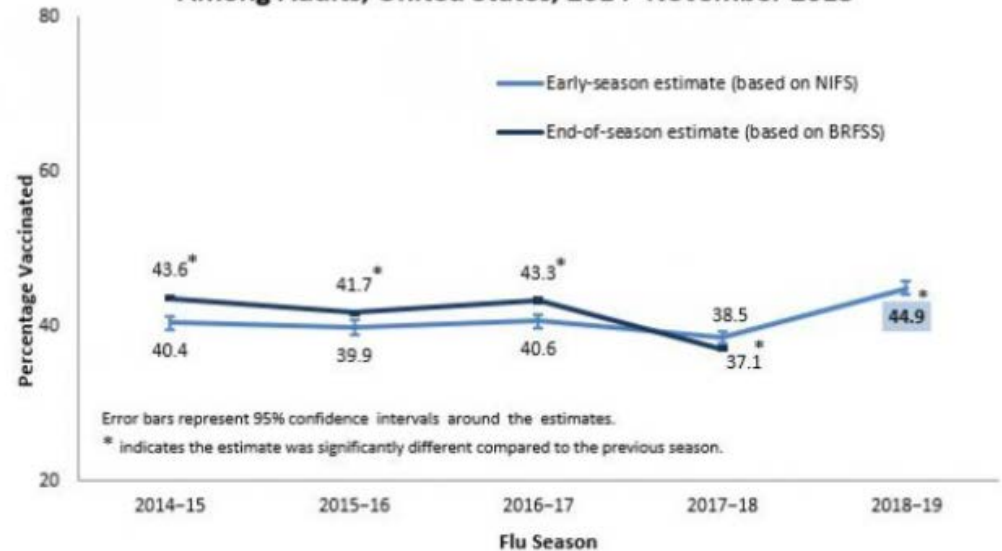


Figure 2. Early and End-of-Season Flu Vaccination Coverage Among Adults, United States, 2014–November 2018



Annual Seasonal Influenza Vaccination is the Best Way to Protect against Influenza

Outpatient visits



Hospitalizations



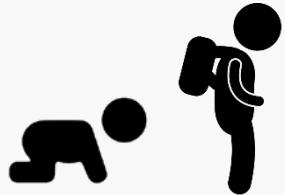
Deaths



In 2017-18, Influenza Vaccination Reduced the Odds of Outpatient Medical Visits by...

40% *

53% *



6 months - 8 years

29% *



9-17 years

35% *



18-49 years

33% *



50-64 years

20%

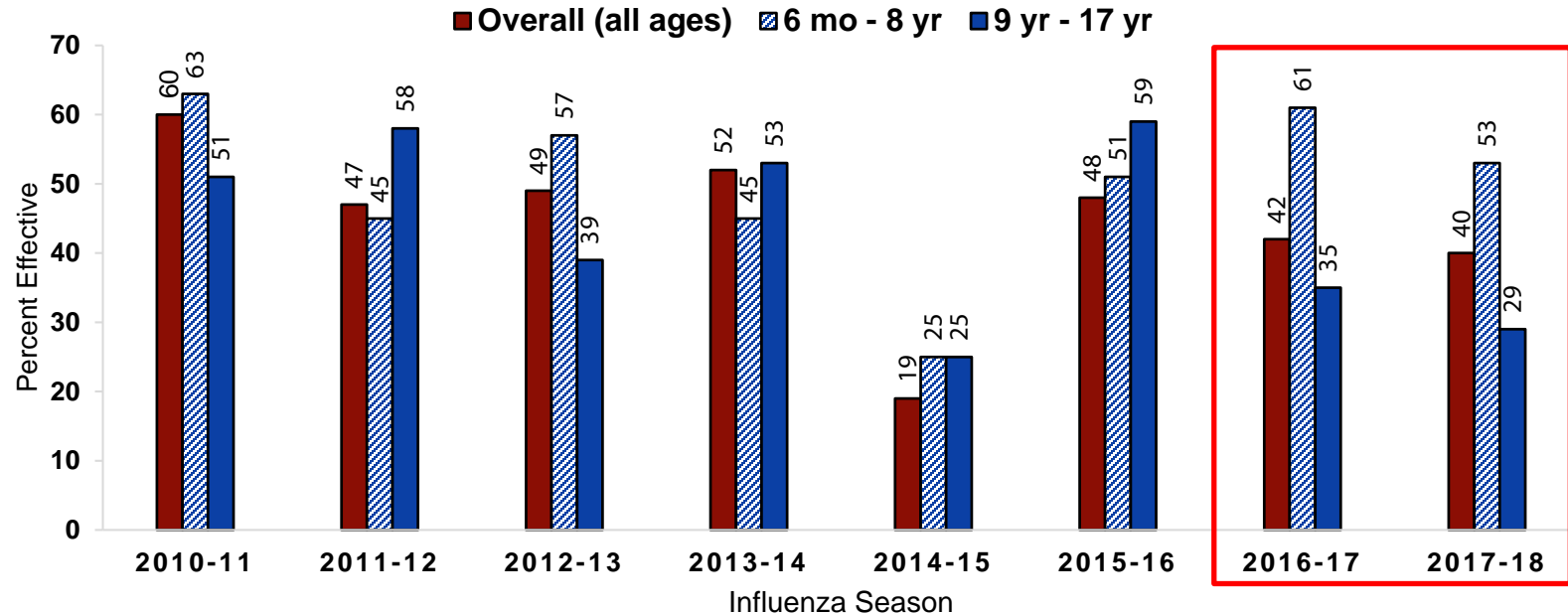


≥65 years

* Vaccine effectiveness estimate was statistically significant, p-value <0.05

Image by Gan Khoon Lay from the Noun Project
Flannery, et al., ACIP meeting, 20 June 2018

Influenza Vaccine Effectiveness against Outpatient Visits for Laboratory-Confirmed Influenza, Overall and for Children – United States, 2010-11 through 2017-18 seasons



Influenza Vaccine Effectiveness in Preventing Severe Disease in Adults

- VE against hospitalization (U.S. 2015-16)
 - **50%** reduction in risk of influenza-associated hospitalization, all ages
 - **65%** age 18-49 years
 - **46%** age 50-64 years
 - **50%** ≥ 65 years
 - **81%** reduction in influenza requiring ICU admission



Image by Gan Khoon Lay from the Noun Project

Ferdinands, et al, J Infect Dis, epub 14 Dec 2018

Influenza Vaccine Effectiveness in Preventing Severe Disease in Children

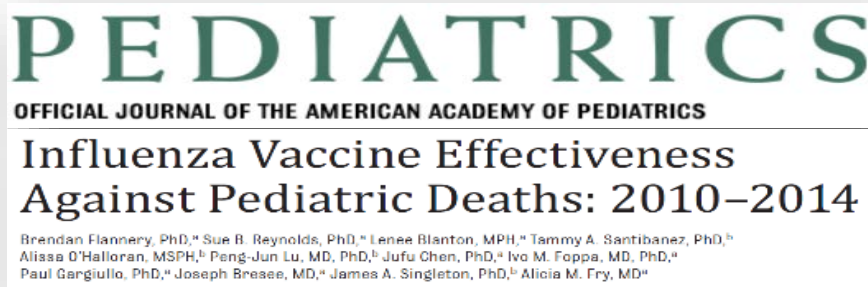
- VE against hospitalization¹
 - **52%-79%** reduction in risk of influenza-associated hospitalization (multiple countries, multiple seasons, inactivated and LAIV vaccines)
- VE against critical illness (U.S. 2010-12)²
 - **74%** reduction in influenza requiring PICU admission



Image by Gan Khoon Lay from the Noun Project

1) Blyth Eurosurveillance 2016; Cowling Vaccine 2014; Buchan PLOS ONE 2017; Sugaya Vaccine 2018; Pebody Eurosurveillance 2017; Cowling Influenza Other Resp Viruses 2017; 2) Ferdinands J Infect Dis 2014

Vaccine Effectiveness for Preventing Death in Children



- VE against death in children *with* high-risk conditions
 - **51%** (31%-67%)
- VE against death in children *without* high-risk conditions
 - **65%** (47%-78%)

Communicating Influenza Vaccine Effectiveness is Challenging...

- Varies by population, circulating virus, vaccine type
- CDC developed a model to translate:

Vaccine effectiveness



**Number of influenza-related outcomes
prevented by vaccination**

Burden Averted by Influenza Vaccination, 2017-18

Approximately 40% of the U.S. population chose to get a flu vaccine during the 2017-2018 flu season, and this prevented an estimated:

7million
flu illnesses,



about the population of
New York City.

109,000

flu hospitalizations,



about the number of vehicles
crossing the Golden Gate Bridge
each day.

8,000

flu deaths,



twice the number of hospitals in
the United States.

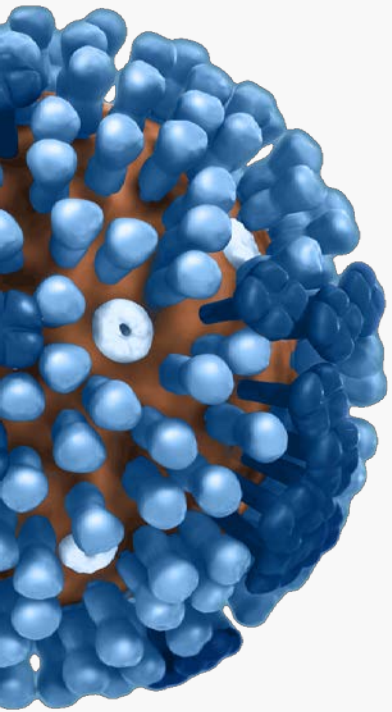
**Imagine the impact if more Americans chose to get a flu vaccine.
Many more flu illnesses, flu hospitalizations and flu deaths could be prevented.**

Factors Associated With Higher Level of Influenza Vaccination

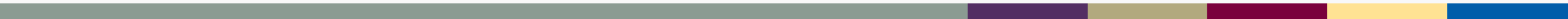
- **Provider recommendation**
- Educational materials
- Age ≥ 50 years
- Being Hispanic
- Having Bachelor's degree or higher
- Having a usual place for medical care
- Having public health insurance

**Your flu vaccine
recommendation
makes a difference.**

Strassberg, et al. Vaccine 2018; 36:4548-54
Lu, et al. Vaccine 2018; 36:890-98
Kahn, et al. Vaccine 2018; 36:3486-97



Diagnosis of Influenza



IDSA Clinical Practice Guidelines, 2018

Clinical Infectious Diseases

IDSA GUIDELINE



Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenza^a

Timothy M. Uyeki,¹ Henry H. Bernstein,² John S. Bradley,^{3,4} Janet A. Englund,⁵ Thomas M. File Jr.,⁶ Alicia M. Fry,¹ Stefan Gravenstein,⁷ Frederick G. Hayden,⁸ Scott A. Harper,⁹ Jon Mark Hirshon,¹⁰ Michael G. Ison,¹¹ B. Lynn Johnston,¹² Shandra L. Knight,¹³ Allison McGeer,¹⁴ Laura E. Riley,¹⁵ Cameron R. Wolfe,¹⁶ Paul E. Alexander,^{17,18} and Andrew T. Pavia¹⁹

Clin Infect Dis. 2018 Dec 19. doi: 10.1093/cid/ciy866. [Epub ahead of print]



<https://www.cdc.gov/flu/professionals/diagnosis/index.htm>

CDC A-Z INDEX ▾

Influenza (Flu)

Seasonal Influenza (Flu)

About Flu +

Flu Season +

Prevent Flu +

Symptoms & Diagnosis +

Treatment +

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Flu Activity & Surveillance +

FluVaxView

Health Professionals -

Health Care Workers Need A Flu Vaccine

CDC Updates for Health Care Providers

ACIP Recommendations +

Vaccination +

Vaccine Effectiveness Studies +

Information for Clinicians on Influenza Virus Testing -

Overview of Influenza Testing Methods

[Seasonal Influenza \(Flu\)](#) > [Health Professionals](#)

Information for Clinicians on Influenza Virus Testing



Language: English (US) ▾

When to Test for Influenza

- [Guide for considering influenza testing when influenza viruses are circulating in the community](#)
- [Influenza virus testing in investigational outbreaks in institutional or other closed settings](#)

How to Interpret Influenza Testing Results

- [Algorithm to assist in the interpretation of influenza testing results and clinical decision-making during periods when influenza viruses are circulating in the community](#)
- [Algorithm to assist in the interpretation of influenza testing results and clinical decision-making during periods when influenza viruses are NOT circulating in the community](#)

What Influenza Virus Tests Are Available

- [Overview of influenza tests](#)
- [Influenza Virus Testing Methods](#)
- [Table 1: Influenza Virus Testing Methods](#)
- [Table 2: FDA-cleared and Available Rapid Influenza Diagnostic Tests](#)
- [Table 3: FDA-cleared Nucleic Acid Detection Based Tests for Influenza Viruses](#)
- [Information on Rapid Molecular Assays, RT-PCR, and other Molecular Assays for Diagnosis of Influenza Virus Infection](#)
- [Information about Rapid Influenza Diagnostic Tests](#)

Information for Laboratory Directors and Staff

- [International Reagent Resource \(IRR\): The IRR website provides registered users with reagents, tools and information on influenza and influenza virus detection ¹](#)
- [Guidance for Standards-Based Electronic Reporting for Influenza](#)

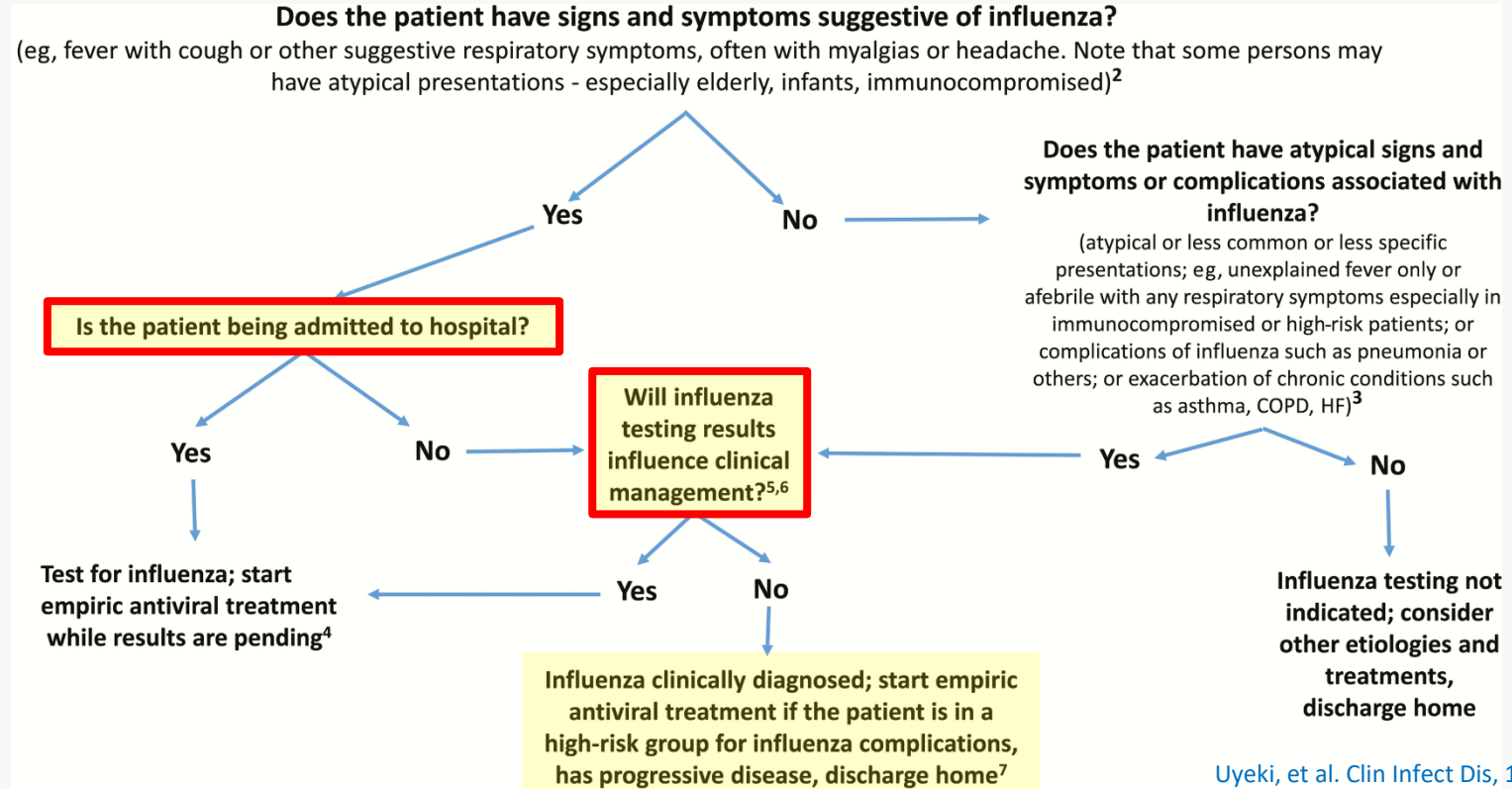
Specimen Collection

- [Information on Collection of Respiratory Specimens for Influenza Virus Testing](#)
- [Upper respiratory tract specimen collection:](#)

Influenza Testing Should be Performed when...

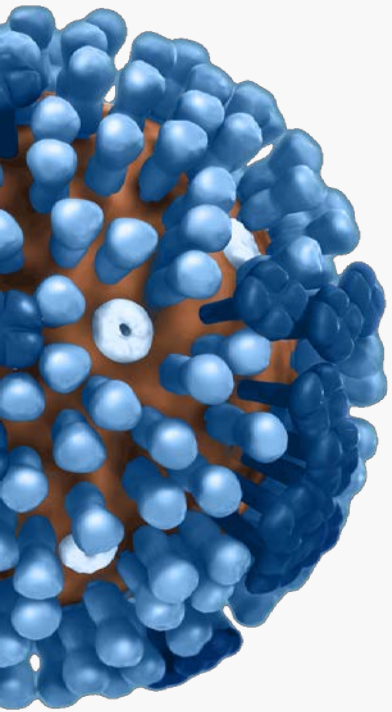
- Results are likely to influence clinical management
 - Decrease unnecessary laboratory testing for other etiologies
 - Decrease unnecessary use of antibiotics
 - Facilitate implementation of infection prevention and control measures
 - Increase appropriate use of influenza antiviral medications
 - Potentially decrease length of stay
- Results will influence a public health response
 - Outbreak identification and interventions

Guide for Considering Influenza Testing when Influenza Circulating in the Community

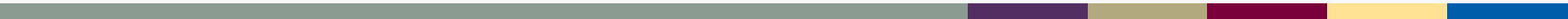


What Tests Should be Used to Diagnose Influenza?

- Outpatients
 - **Rapid molecular assays** (nucleic acid amplification tests) have high sensitivity and will improve detection over **rapid influenza diagnostic tests (RIDTs)** that use antigen detection
- Hospitalized Patients
 - Molecular assays (including **RT-PCR or other multiplex molecular assays**) should be used to improve detection of influenza
 - Multiplex molecular panel recommended for hospitalized immunocompromised patients



Antiviral Treatment Recommendations



Influenza Antiviral Treatment

- Influenza antiviral medications are an important adjunct to vaccination
- Focus of CDC influenza treatment guidance is on *prevention of severe outcomes*
 - Treatment of those with severe disease and persons at highest risk of severe influenza complications
- Antiviral recommendations are common to IDSA and AAP

Influenza Antiviral Treatment – Brief Overview of Data

- Clinical trials and observational data show that early antiviral treatment can shorten the duration of fever and flu symptoms
- Meta-analyses of randomized controlled trials have demonstrated that early treatment reduced risk of otitis media in children and lower respiratory tract complications requiring antibiotics and hospital admission in adults
- Observational studies and meta-analyses of observational data have reported:
 - Among high-risk outpatient children and adults, early antiviral treatment reduced risk of hospital admission
 - Early treatment of hospitalized adult influenza patients with oseltamivir reduced the likelihood of death and shortened hospitalization
 - In hospitalized children, early antiviral treatment with oseltamivir shortened duration of hospitalization

CDC/IDSA Antiviral Treatment Recommendations

- Antiviral treatment is recommended as early as possible for any patient with suspected or confirmed influenza who is:
 - Hospitalized
 - Has severe, complicated, or progressive illness
 - Is at high risk for influenza complications

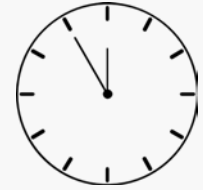


People at High Risk for Influenza Complications for Whom Antiviral Treatment is Recommended

- Children <2 years old (although all children <5 years old are considered at high risk for complications, highest risk is for children <2 years old)
- Adults age 65 years and over
- Pregnant/postpartum women
- American Indians/Alaska Natives
- Children ≤ 18 years old receiving long-term aspirin therapy
- People with underlying medical conditions (e.g., pulmonary, cardiac, immunosuppression, neurologic and neurodevelopment conditions)
- Residents of nursing homes/chronic care facilities



Timing of Influenza Antiviral Treatment



- Clinical benefit is greatest when antiviral treatment is initiated as close to illness onset as possible
- Treatment should not be delayed while testing results are pending
- Antiviral treatment initiated after 48 hours can still be beneficial in some patients
 - Observational studies of hospitalized patients suggest that treatment might still be beneficial when initiated 4 or 5 days after symptom onset
 - Observational data in pregnant women has shown antiviral treatment to provide benefit when started 3-4 days after onset

CDC/IDSA Antiviral Treatment Recommendations

- Antiviral treatment is recommended as early as possible for any patient with suspected or confirmed influenza who is:
 - Hospitalized
 - Has severe, complicated, or progressive illness
 - Is at high risk for influenza complications
- Antiviral treatment can be considered for any previously healthy, symptomatic outpatient not at high risk with suspected or confirmed influenza on the basis of clinical judgment, if treatment can be initiated within 48 hours of illness onset



Influenza Antiviral Medications

- Four FDA-approved antivirals are recommended for use in the United States
 - Neuraminidase inhibitors: oral oseltamivir, inhaled zanamivir, and intravenous peramivir
 - Cap-dependent endonuclease inhibitor: oral baloxavir

Influenza Antiviral Medications

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Drug	Route	Treatment	Chemoprophylaxis	Adverse Events
Oseltamivir	Oral	Any age	≥3 months	Nausea, vomiting, headache*
Zanamivir	Inhaled	≥7 years	≥5 years	Bronchospasm*
Peramivir	Intravenous	≥2 years	N/A	Diarrhea*
Baloxavir	Oral	≥12 years	N/A	(none more common than placebo)

*Post-marketing reports of serious skin reactions and sporadic, transient neuropsychiatric events



<https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm>

Baloxavir Marboxil

- Cap-dependent endonuclease inhibitor (new mechanism of action)
- FDA approved 10/24/2018
 - Treatment of acute, uncomplicated influenza in patients ≥ 12 -64 years
- Oral, single dose
- Baloxavir was associated with:
 - Significantly shorter time to alleviation of symptoms than placebo
 - Significantly more rapid declines in viral load and shorter duration of infectious virus detection than oseltamivir or placebo
- Greatest clinical benefit when initiated early after illness onset
- Emergence of viral escape mutants with reduced susceptibility

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Baloxavir Marboxil for Uncomplicated Influenza in Adults and Adolescents

Frederick G. Hayden, M.D., Norio Sugaya, M.D., Nobuo Hirotsu, M.D., Ph.D., Nelson Lee, M.D.,
Menno D. de Jong, M.D., Ph.D., Aeron C. Hurt, Ph.D., Tadashi Ishida, M.D., Ph.D., Hisakuni Sekino, M.D., Ph.D.,
Kota Yamada, M.D., Simon Portsmouth, M.D., Keiko Kawaguchi, M.Sc., Takao Shishido, Ph.D.,
Masatsugu Arai, M.Sc., Kenji Tsuchiya, M.Sc., Takeki Uehara, Ph.D., and Akira Watanabe, M.D., Ph.D.,
for the Baloxavir Marboxil Investigators Group*

Influenza Antiviral Treatment: Hospitalized Patients

- Treatment with oral or enterically-administered oseltamivir is recommended as soon as possible
 - Inhaled zanamivir and oral baloxavir are not recommended because of the lack of data in hospitalized influenza patients
 - There are also insufficient data for treatment of hospitalized influenza patients with intravenous peramivir
- For patients who cannot tolerate or absorb oral or enterically-administered oseltamivir (gastric stasis, malabsorption, or gastrointestinal bleeding), the **use of intravenous peramivir should be considered**
- The optimal duration and dosing of antiviral treatment are uncertain for severe or complicated influenza



Influenza Antiviral Treatment: Pregnant Women

- For treatment of pregnant women or women who are up to 2 weeks postpartum, oral oseltamivir is preferred because it has the most studies available to suggest that it is safe and beneficial
- Baloxavir is not recommended for treatment of pregnant women or breastfeeding mothers
 - No available efficacy or safety data in pregnant women
 - No available data on the presence of baloxavir in human milk, the effects on the breastfed infant, or the effects on milk production



Additional CDC Resources

- CDC Influenza homepage: <https://www.cdc.gov/flu/>
- Influenza surveillance (FluView): <https://www.cdc.gov/flu/weekly/fluactivitysurv.htm>
- Influenza vaccination coverage: <https://www.cdc.gov/flu/fluview/index.htm>
- For Professionals: <https://www.cdc.gov/flu/professionals/index.htm>
 - 2018-19 ACIP Influenza Recommendations:
<https://www.cdc.gov/mmwr/volumes/67/rr/rr6703a1.htm>
 - Vaccination homepage:
<https://www.cdc.gov/flu/professionals/vaccination/index.htm>
 - Antiviral homepage:
<https://www.cdc.gov/flu/professionals/antivirals/index.htm>

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 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.



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□ Using the Webinar System

- Click the Q&A button in the webinar;
- Type your question in the Q&A box (please do not submit questions via the “chat” button, as it will not be seen by the moderator).
- Submit your question.
- CDC Media media@cdc.gov or 404-639-3286.
- Patients, please refer your questions to your healthcare provider.

Today's webinar will be archived

When: A few days after the live call

What: All call recordings (audio and webinar available in a few days; transcript will be available in a few weeks)

Where: On the COCA Call webpage

[https:// emergency.cdc.gov/coca/calls/2019/callinfo_020519.asp](https://emergency.cdc.gov/coca/calls/2019/callinfo_020519.asp)

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All continuing education (CME, CNE, CEU, CECH, ACPE, CPH, and AAVSB/RACE) for COCA Calls are issued online through the CDC Training & Continuing Education Online system (<http://www.cdc.gov/TCEOnline/>) .

Those who participated in today's COCA Call and who wish to receive continuing education should complete the online evaluation by **March 11, 2019** with the course code **WC2922**.

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Continuing education certificates can be printed immediately upon completion of your online evaluation. A cumulative transcript of all CDC/ATSDR CE's obtained through the CDC Training & Continuing Education Online System will be maintained for each user.

Upcoming COCA Call

Topic: Clinician Update: Cholera Vaccine for Travelers

Date: Thursday, February 7, 2019

Time: 2:00-3:00pm ET

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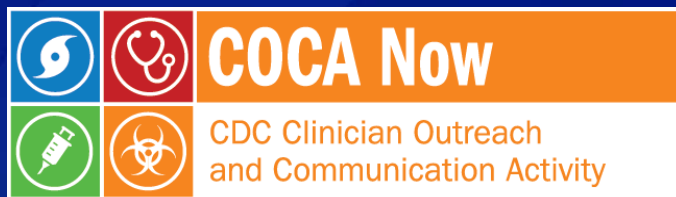


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Informs clinicians of new CDC resources and guidance related to emergency preparedness and response. This email is sent as soon as possible after CDC publishes new content.

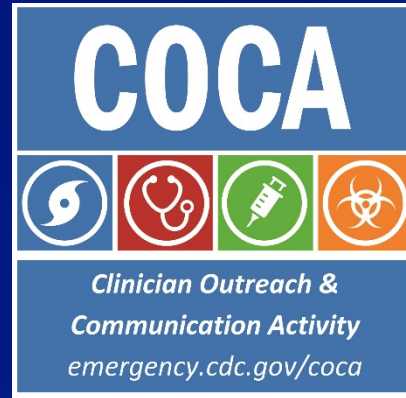


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