2025 – 2026 Clinical Recommendations for Seasonal Influenza Prevention and Control

Clinician Outreach and Communication Activity (COCA) Call

Thursday, December 11, 2025

MS Teams Platform

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Continuing Education Disclosure (continued)

- In addition, content will not include any discussion of the unlabeled use of a product or a product under investigational use with the exception of Dr. Tim Uyeki's discussion that CDC recommends oseltamivir treatment for persons of all ages (FDA approval is for persons aged 14 days and older) and that CDC recommends oseltamivir treatment for hospitalized patients (FDA approval is for outpatients).
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Objectives

At the conclusion of today’s session, the participant will be able to accomplish the following:

- Highlight key recommendations in the CDC Advisory Committee on Immunization Practices' document, "*Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2025–26 Influenza Season*."
- Describe influenza testing recommendations in outpatients and in hospitalized patients with suspected influenza.
- Review antiviral medications for influenza and CDC's recommendations for antiviral treatment of patients with suspected or lab-confirmed influenza.

To Ask a Question

- Using the MS Teams Platform
  - The ability to ask questions during the live webinar is limited to the first 1,000 attendees who join the webinar.
  - Questions may be submitted after the live session by emailing coca@cdc.gov.
- If you are a patient, please refer your question to your healthcare provider.
- If you are a member of the media, please direct your questions to CDC Media Relations at 404-639-3286 or email media@cdc.gov.

Today's Presenters

- **Tim Uyeki, MD, MPH, MPP**
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  National Center for Immunization and Respiratory Diseases
  Centers for Disease Control and Prevention

- **Lisa A. Grohskopf, MD, MPH**
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  Influenza Division
  National Center for Immunization and Respiratory Diseases
  Centers for Disease Control and Prevention

Update on Influenza, United States, 2025-2026 Influenza Season

Tim Uyeki MD, MPH, MPP
Lisa Grohskopf MD, MPH
Influenza Division, National Center for Immunization and Respiratory Diseases
December 11, 2025

Disclaimer

- The findings and conclusions in this presentation are those of the speakers and do not necessarily represent the official position of CDC.

Overview

- Describe 2024-2025 seasonal influenza epidemiology and disease burden
- Discuss 2024-2025 influenza vaccine effectiveness and influenza vaccine recommendations for 2025-2026
- Discuss influenza testing and antiviral treatment recommendations

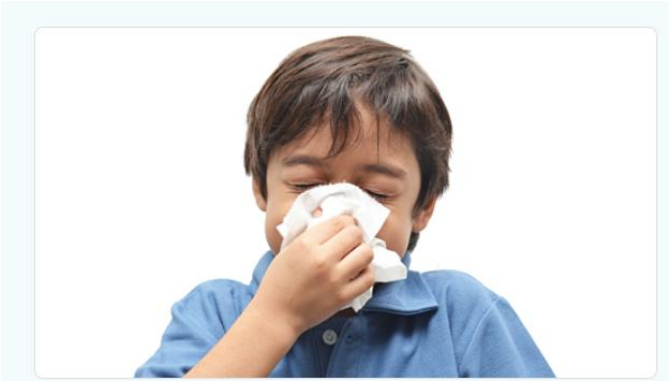
Key Points

- **2024-2025 was a high severity U.S. influenza season**
  - **High morbidity and mortality, wide range of respiratory and non-respiratory complications**
- **Influenza vaccine effectiveness (VE) in 2024-2025 was moderate against uncomplicated illness and severe influenza in the U.S.**
  - **Influenza activity is increasing in the U.S. The time to get vaccinated for 2025-2026 is now for persons aged ≥6 months who have not received influenza vaccine this season**
- **Molecular influenza tests are recommended**
  - **Rapid molecular tests for outpatients; rapid and other molecular tests for hospitalized patients (including multiplex assays)**
- **Influenza antiviral treatment is recommended as soon as possible for:**
  - **Outpatients: at increased risk for influenza complications**
    - **Ideally within 2 days of illness onset: Oseltamivir or Baloxavir**
    - **For progressive or severe disease (regardless of time since onset): Oseltamivir**
  - **Hospitalized patients: Oseltamivir is recommended as soon as possible**

Influenza Background
Influenza Activity and Disease Burden

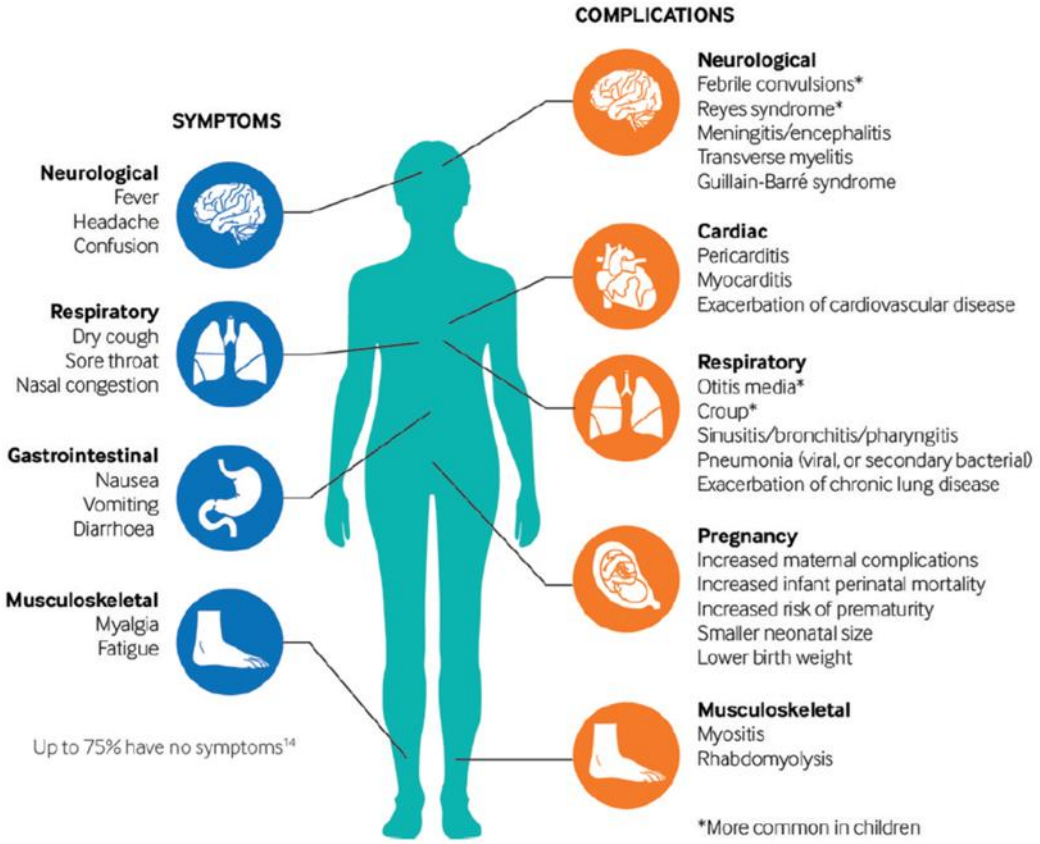
Seasonal Influenza Background

- **Contagious respiratory illness caused by infection with influenza viruses**
  - Influenza A and B viruses cause annual seasonal epidemics during fall/winter/spring in the United States and worldwide.
- **Transmission:** via large and small infectious respiratory particles from an infected person to a susceptible individual in close proximity
- **Incubation period:** 1-3 days
- **Infection spectrum:** asymptomatic, mild illness to severe complications, death
- **Signs and symptoms of uncomplicated influenza** (typically abrupt onset):
  - Fever or feeling feverish/chills
  - Cough
  - Sore throat
  - Runny or stuffy nose
  - Headache
  - Muscle or body aches
  - Fatigue (tiredness)



Influenza Complications

- **Moderate Illness**:
  - Otitis media in young children, sinusitis
  - Exacerbation of chronic disease
- **Severe to Critical Illness:**
  - **Exacerbation of chronic disease**
  - **Respiratory:** viral pneumonia, croup, status asthmaticus, bronchiolitis, tracheitis, acute respiratory distress syndrome (ARDS)
  - **Cardiac:** myocarditis, pericarditis, myocardial infarction
  - **Neurologic:** encephalopathy & encephalitis, cerebrovascular accident, Guillain-Barre syndrome (GBS), acute disseminated encephalomyelitis (ADEM), Reye syndrome
  - **Bacterial co-infection:** invasive bacterial infection (e.g., community-acquired pneumonia)
    - *Staphylococcus aureus* (MSSA, MRSA), *Streptococcus pneumoniae*, group A *Streptococcus*
  - **Musculoskeletal:** myositis, rhabdomyolysis
  - **Multi-organ failure** (respiratory, renal failure, septic shock)
  - **Healthcare-associated infections** (e.g., bacterial or fungal ventilator-associated pneumonia)



Ghebrehewet BMJ 2016

Pediatric Influenza-associated Encephalopathy (IAE)

- **Known severe complication of influenza - no established U.S. surveillance**
  - Impaired consciousness/altered mental status, brain dysfunction
  - Transient, self-limited to fulminant progression to coma, death
    - Most severe: **acute necrotizing encephalopathy (ANE)**
- CDC requested notification of IAE cases during 2024-25
  - 109 IAE cases (37 with ANE), median age: 5 years (55% without underlying conditions)
  - **Influenza vaccine coverage: 16%** (eligible with known vaccine status)
  - **Median time from symptom onset to neurologic symptoms: 2 days**
    - **74% admitted to an ICU; 59 (54%) received invasive mechanical ventilation, 21 (19%) died**
      - **41% with ANE died**

Silverman JAMA 2025

Fazal MMWR 2025

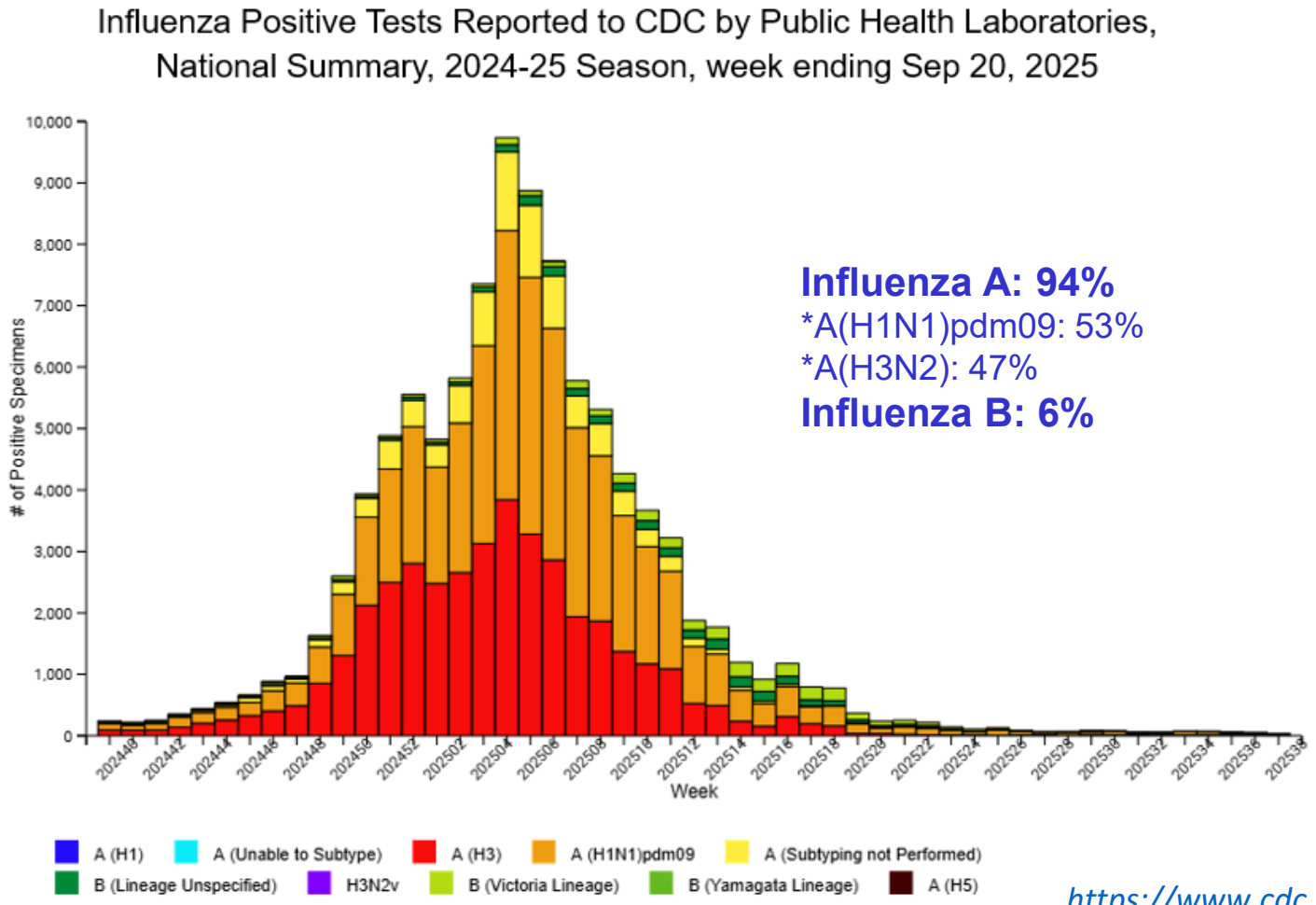
Groups at Increased Risk for Influenza Complications and Severe Illness

- **Children <2 years and adults ≥65 years**
- **Persons with chronic medical conditions**, including pulmonary (including asthma) or cardiovascular (excluding isolated hypertension), renal, hepatic, neurologic (including persons who have had a stroke) and neurodevelopmental, hematologic (e.g., sickle cell disease), metabolic or endocrine disorders (including diabetes mellitus), certain disabilities
- **Persons who are immunocompromised**
- **Persons with extreme obesity (BMI ≥40)**
- **Children and adolescents who are receiving aspirin-or salicylate-containing medications** (who might be at risk for Reye syndrome after influenza virus infection)
- **Residents of nursing homes and other long-term care facilities**
- **Pregnant women and up to 2 weeks postpartum**
- **People from certain racial and ethnic minority groups, including non-Hispanic Black, Hispanic or Latino, and American Indian or Alaska Native persons**

https://www.cdc.gov/flu/highrisk/index.htm

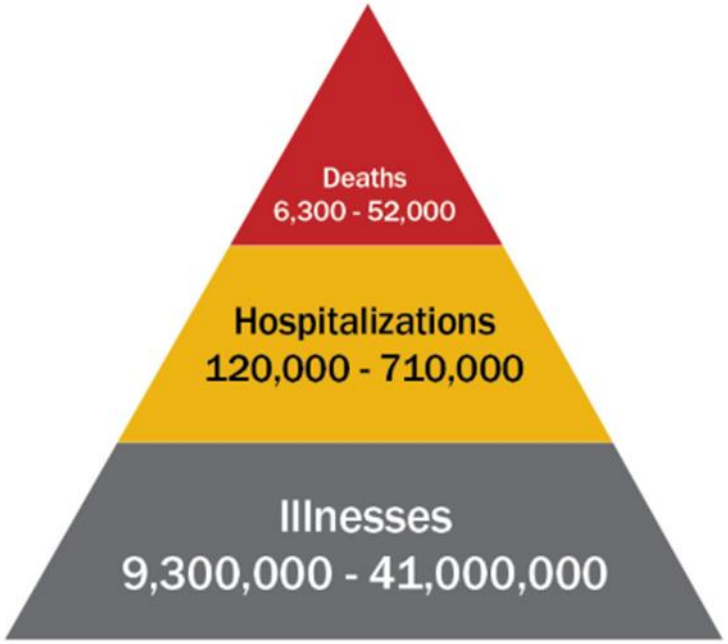
2024-2025: Influenza A Virus Predominant Season (U.S.)

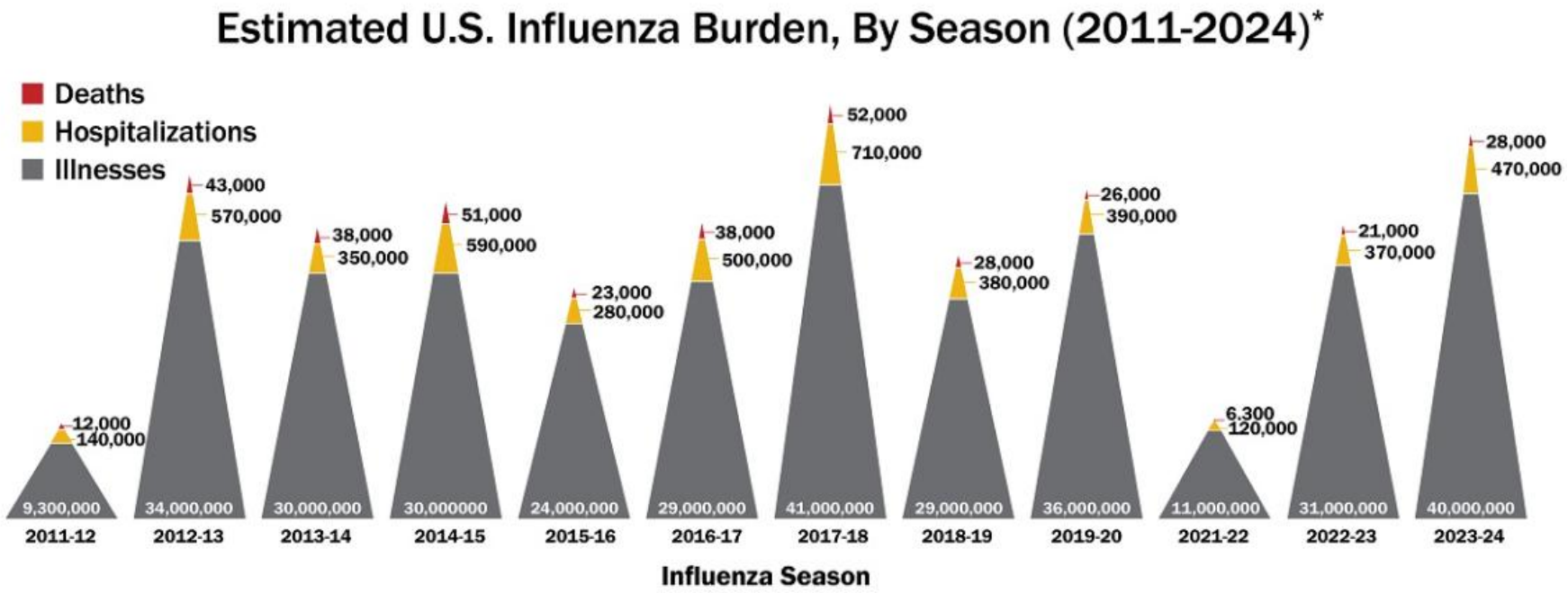
- Approximately even split of influenza A(H1N1)pdm09 and A(H3N2) viruses
- Low level of influenza B virus circulation, mostly later in the season



https://www.cdc.gov/fluview/surveillance/week-38.html

Estimated Influenza Disease Burden (U.S., all ages)

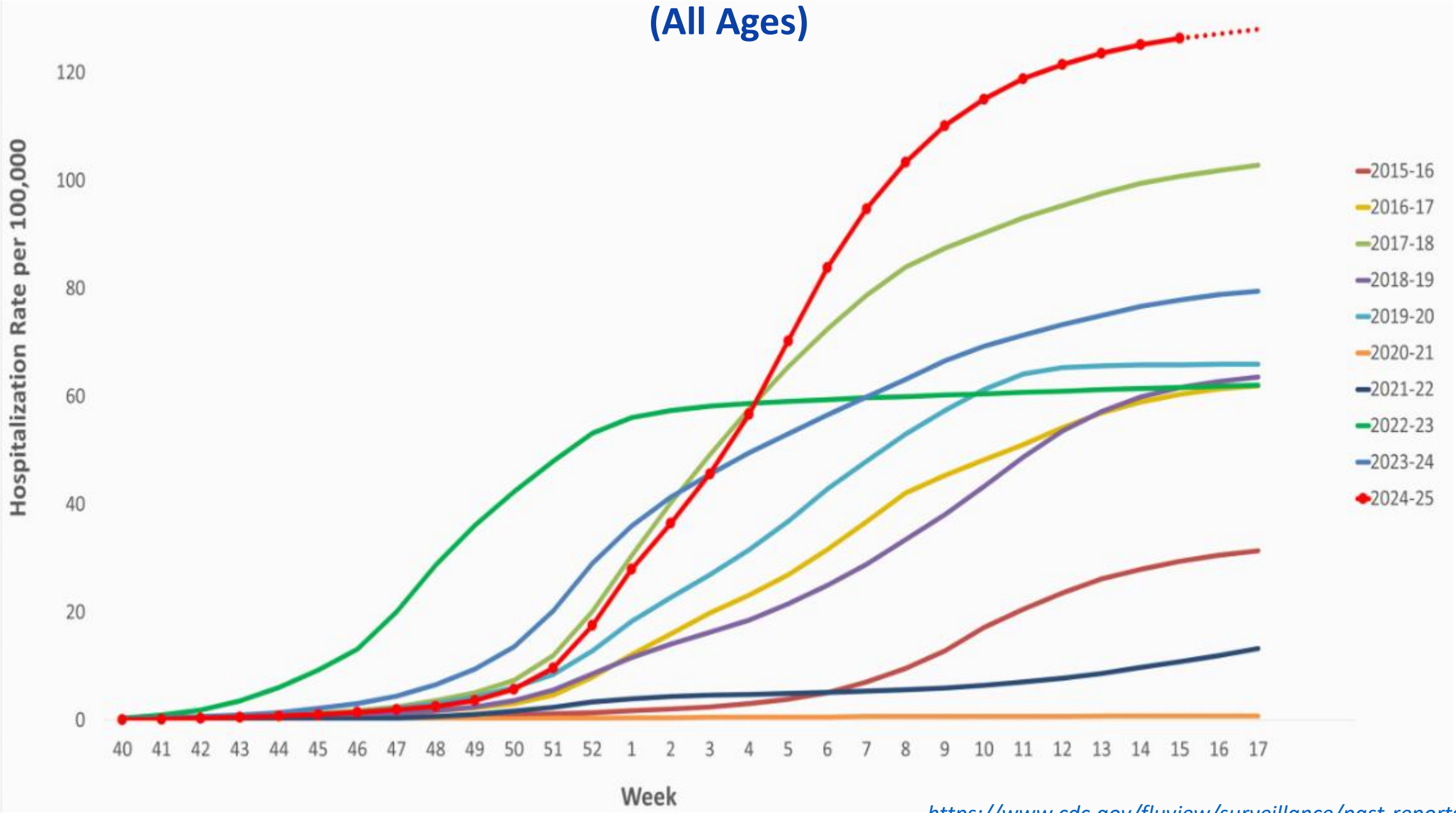




Estimated Influenza Disease Burden 2010 - 2024

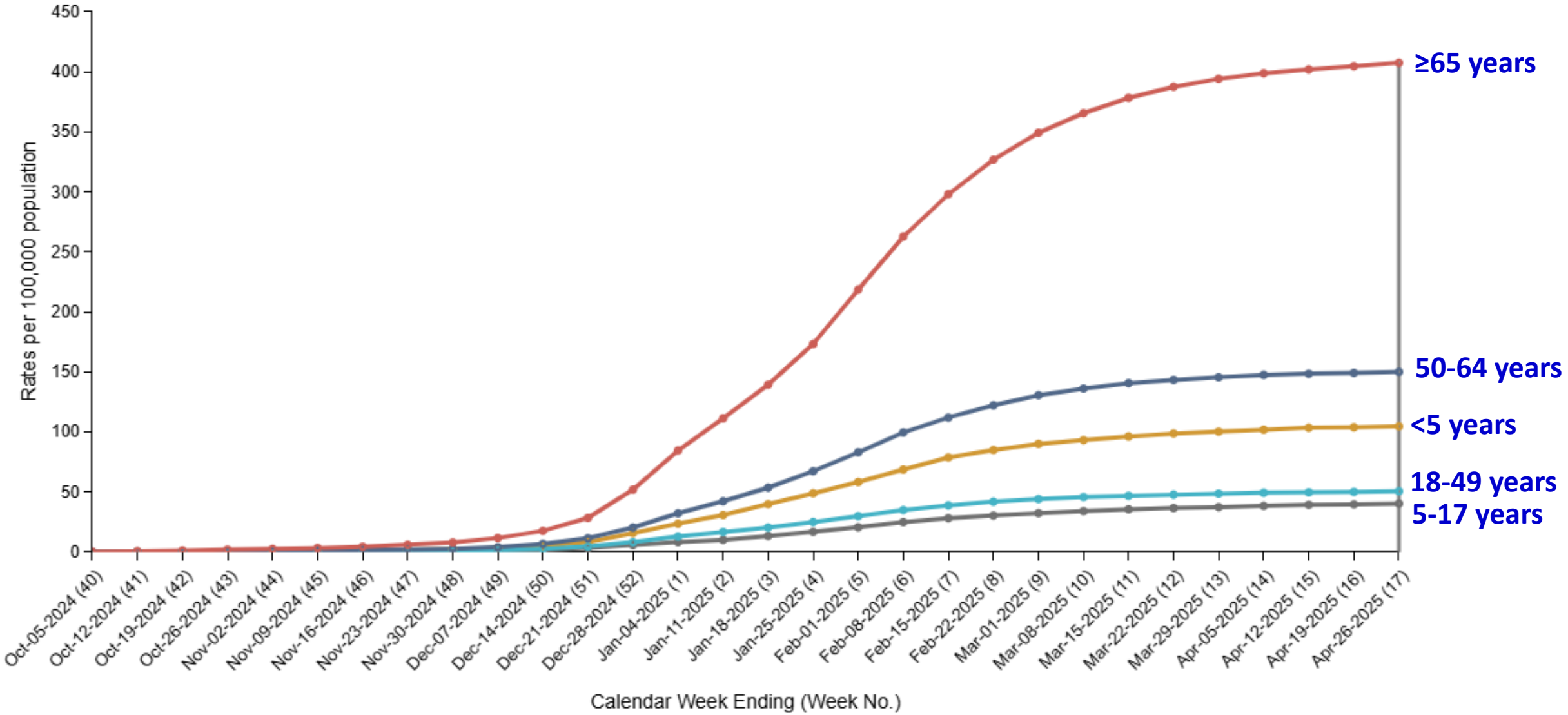
https://www.cdc.gov/flu-burden/php/about/index.html; https://www.cdc.gov/flu-burden/php/data-vis/index.html

Cumulative Lab-confirmed Hospitalization Rates, 2015-2016 to 2024-2025 Seasons, U.S. (All Ages)



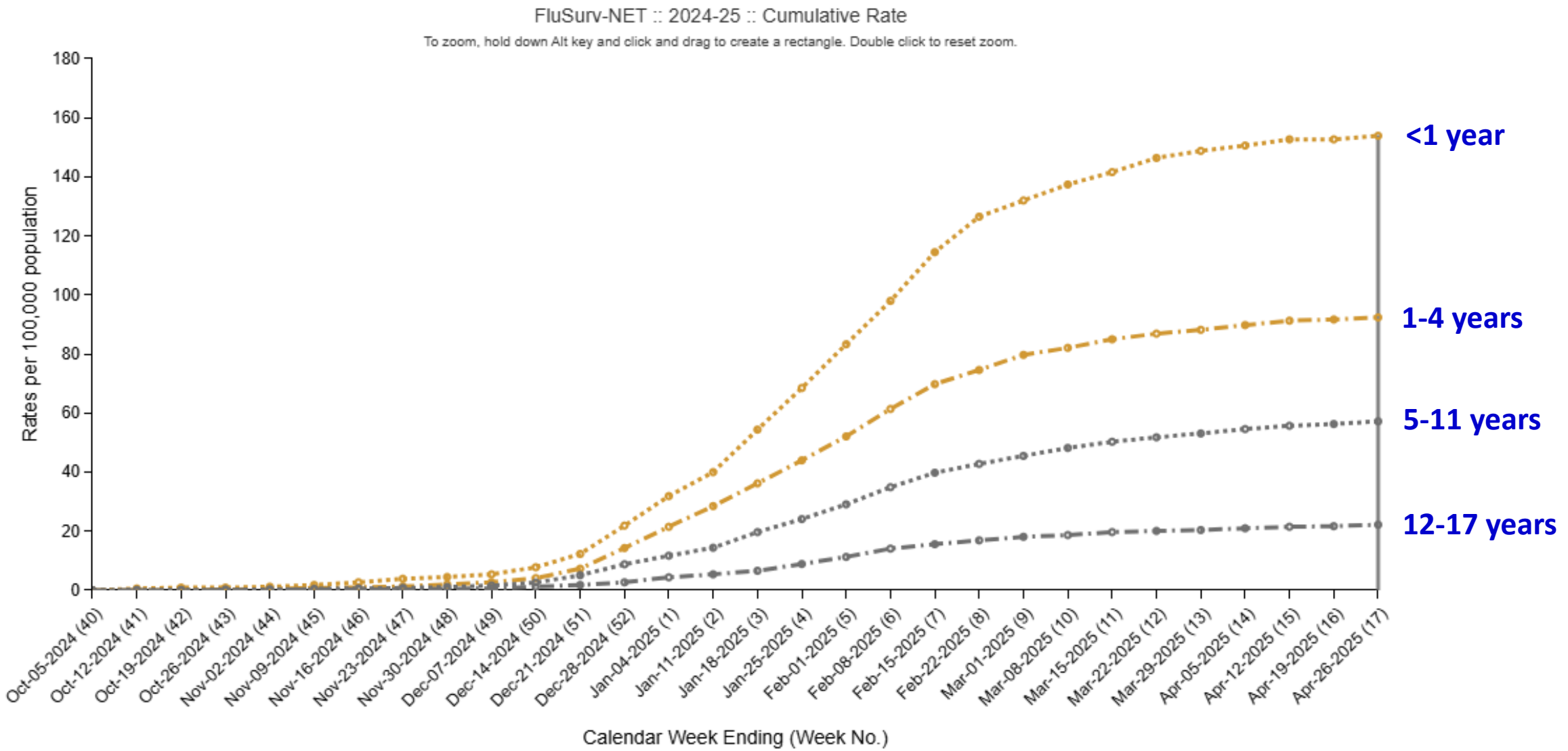
https://www.cdc.gov/fluview/surveillance/past-reports.html

Cumulative Lab-confirmed Hospitalization Rates by Age Group, 2024-2025 Season, U.S.



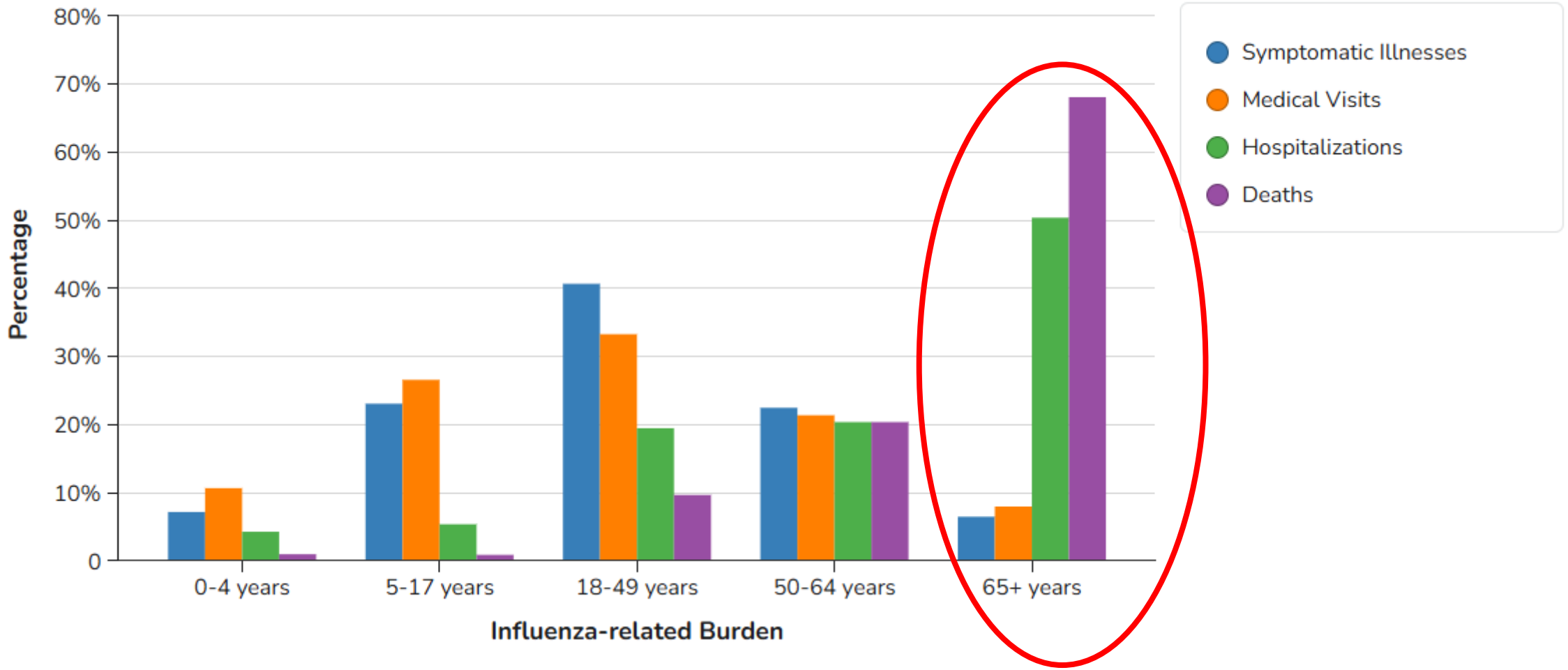
https://gis.cdc.gov/GRASP/Fluview/FluHospRates.html

Cumulative Influenza-associated Hospitalization Rates by Pediatric Age Groups, 2024-2025 Season, U.S.



https://gis.cdc.gov/GRASP/Fluview/FluHospRates.html

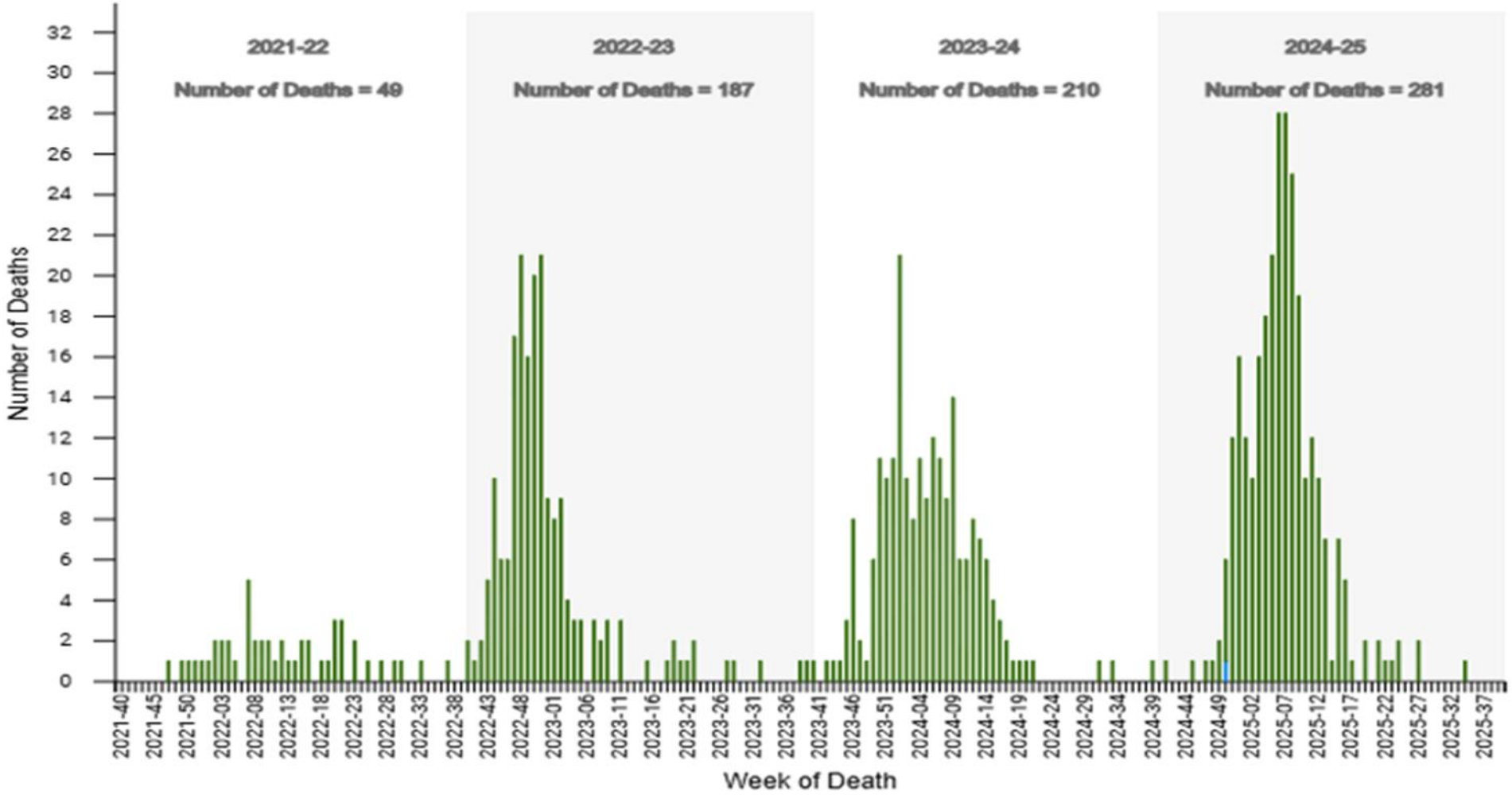
Estimated Influenza-associated Disease Burden by Age Group, 2023-2024 Season, U.S.



https://www.cdc.gov/flu-burden/php/data-vis/2023-2024.html

Influenza-associated Pediatric Deaths by Week of Death, 2021-22 to 2024-25 Seasons, U.S.

(N=49 deaths) (N=187 deaths) (N=210 deaths) (N=288 deaths)



https://www.cdc.gov/fluview/surveillance/2025-week-35.html

Preliminary 2024–2025 U.S. Flu In-Season Disease Burden Estimates

Since October 1, 2024, CDC estimates there have been between:

47 Million - 82 Million	21 Million - 37 Million	610,000 - 1.3 Million	27,000 - 130,000
			
Flu Illnesses	**Flu Medical Visits**	**Flu Hospitalizations**	**Flu Deaths**

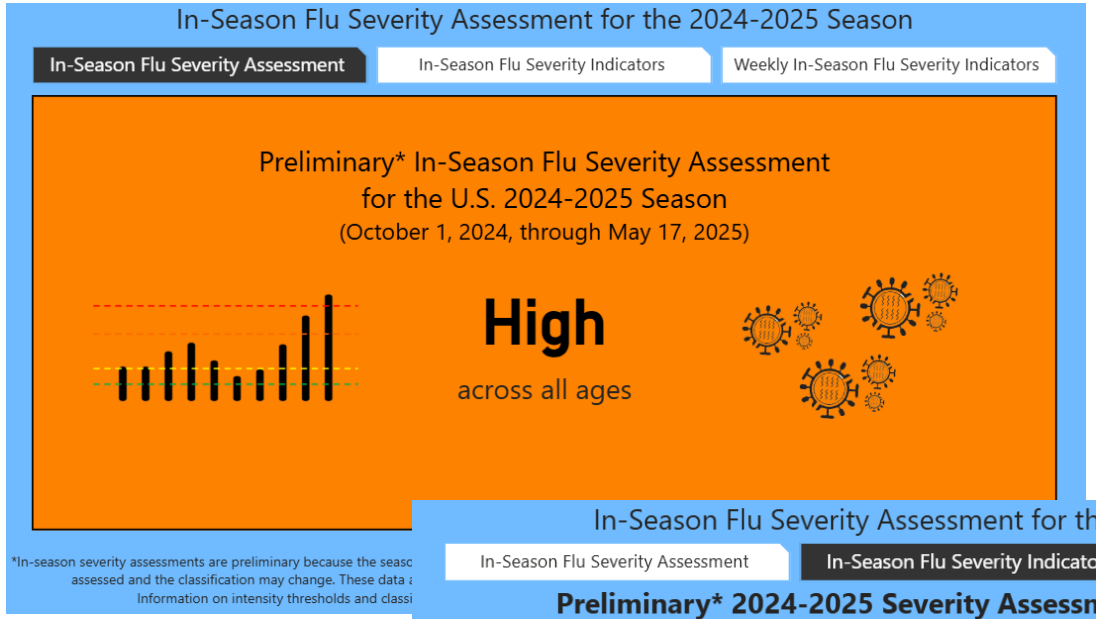
Based on data from October 1, 2024, through May 17, 2025

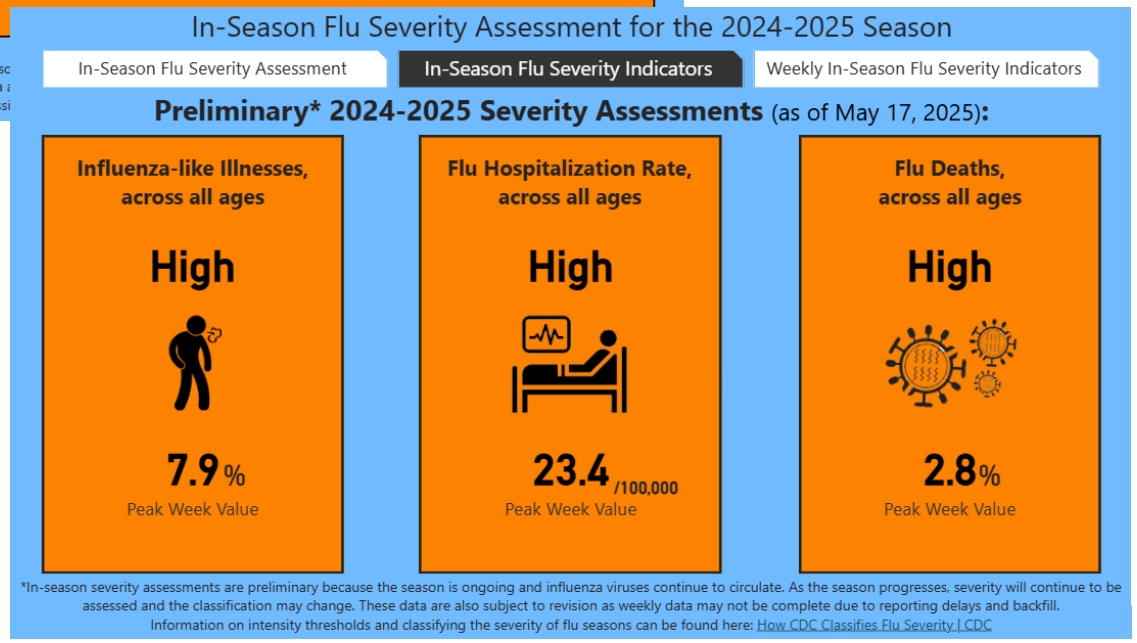
Because influenza surveillance does not capture all cases of flu, CDC provides these estimated ranges to better reflect the full burden of flu in the United States. These estimates are calculated using a mathematical model based on CDC's weekly influenza surveillance data and are preliminary and are updated weekly throughout the season.

FluVIEW

CDC

2024 - 2025: A High Severity Season





Assessment of Influenza Seasonal Severity by Age Group for 2003/2004 - 2023/2024 Seasons

Season	0 - 17	18 - 64	65+	All Ages
2003/04	Very High	Moderate	High	High
2004/05	Low	Moderate	Moderate	Moderate
2005/06	Low	Low	Low	Low
2006/07	Low	Low	Low	Low
2007/08	Moderate	Moderate	Moderate	Moderate
2008/09	Low	Low	Low	Low
2009/10	Very High	Moderate	Low	Moderate
2010/11	Moderate	Moderate	Moderate	Moderate
2011/12	Low	Low	Low	Low
2012/13	Moderate	Moderate	High	Moderate
2013/14	Moderate	Moderate	Moderate	Moderate
2014/15	Moderate	Moderate	High	High
2015/16	Low	Moderate	Low	Moderate
2016/17	Moderate	Moderate	Moderate	Moderate
2017/18	High	High	High	High
2018/19	Moderate	Moderate	Moderate	Moderate
2019/20	High	High	Moderate	Moderate
2021/22	Low	Low	Low	Low
2022/23	High	Moderate	Moderate	Moderate
2023/24	Moderate	Moderate	Moderate	Moderate

*2020/21 flu season was not estimated because of minimal flu activity.

Influenza A(H3N2) Virus, Subclade K

- A new influenza A(H3N2) virus, subclade K, was identified by CDC in August 2025, which is antigenically drifted compared with the 2025-2026 influenza A(H3N2) vaccine virus.
- While early, influenza A(H3N2) viruses are the most frequently reported influenza viruses so far this season in the United States.
  - Among A(H3N2) viruses characterized at CDC, 87% belonged to subclade K.
- None of the three A(H3N2) viruses collected this season in the United States were well-recognized by post-infection ferret antisera against Northern Hemisphere 2025-2026 influenza vaccine strains.

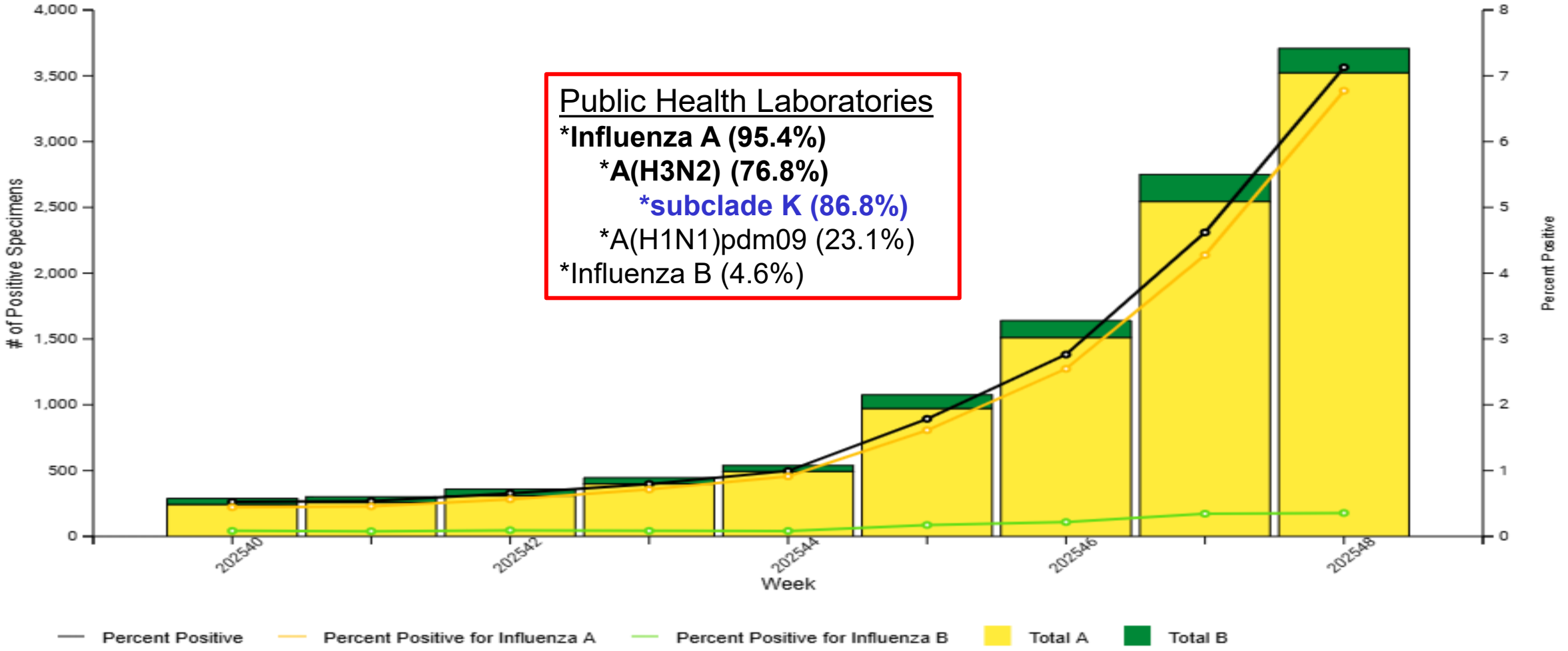
Weekly US Influenza Surveillance Report: Key Updates for Week 48, ending November 29, 2025 | FluView | CDC

FLUVIEW interactive

Influenza positive tests reported to the CDC

CDC U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

Influenza Positive Tests Reported to CDC by Clinical Laboratories, National Summary, 2025-26 Season, week ending Nov 29, 2025



Influenza Vaccine Recommendations Update, 2025-26 Season

Recommendation Summary

- **Routine annual influenza vaccination is recommended for all persons aged ≥6 months without a contraindication to vaccination to protect against influenza and its complications.**

- **Multiple formulations of the trivalent influenza vaccine are available for the U.S. 2025–26 influenza season**
  - Inactivated influenza vaccines (IIV3s)
  - Recombinant influenza vaccine (RIV3) (Flublok)
  - Live attenuated influenza vaccine (LAIV3) (FluMist)

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2025–26 Influenza Season | MMWR

2025-26 Influenza Vaccination Recommendations

- **Published in *MMWR* on August 28**
- **Shorter format focusing on updates for the season**
- **New information and recommendations for 2025-26:**
  - Updated U.S. influenza vaccine composition
  - Availability of FluMist (the intranasal live attenuated influenza vaccine, LAIV3) for self- or caregiver administration
  - New approved age range for Flublok (≥9 years)
  - Only vaccines that do not contain thimerosal as a preservative are recommended, for all recipients

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2025–26 Influenza Season | MMWR

FluMist (LAIV3) for Self- or Caregiver Administration

- **Consumers can now order FluMist for delivery for eligible recipients**
- **Eligibility screening performed by online pharmacy, based on ACIP* criteria**
- **Approved for**
  - Self-administration for persons aged 18 through 49 years
  - Administration by an adult caregiver to recipients aged 2 through 17 years
- **ACIP recommendations regarding appropriate populations, contraindications, and precautions are same as for healthcare provider administration**
  - LAIV3 approved and recommended only for ages 2 through 49 years
  - Not recommended in pregnancy, immunocompromise, and certain other conditions

*Advisory Committee on Immunization Practices

Ordering & Using FluMist at Home| FluMist® (Influenza Vaccine Live, Intranasal)

New Approved Minimum Age for Flublok (RIV3)

- **Recombinant influenza vaccine (RIV3)**
- **Previously approved for ≥18 years; new age indication is ≥9 years**
  - Approval based on study which compared immune response and safety of Flublok among 9- through 17-year-olds with that among 18- through 49-year-olds

Flublok | FDA

Influenza Vaccine Effectiveness Estimates

CDC Networks Evaluating Influenza Vaccine Effectiveness (VE), U.S.

- **Four networks which provide estimates in the reduction in medically-attended influenza illness associated with influenza vaccination**
- **Taken together, they cover outpatient and inpatient illness in both children and adults**

Network	Population	Age Group
New Vaccine Surveillance Network (NVSN)	Inpatient/Outpatient	Children
Virtual SARS-CoV-2, Influenza, and Other respiratory viruses Network (VISION)	Inpatient/Outpatient	Children/Adults
U.S. Flu Vaccine Effectiveness Network (US Flu VE)	Outpatient	Children/Adults
Investigating Respiratory Viruses in the Acutely Ill (IVY)	Inpatient	Adults

* Confidence interval

Interim Estimates of 2024–2025 Seasonal Influenza Vaccine Effectiveness — Four Vaccine Effectiveness Networks, United States, October 2024–February 2025 | MMWR

Preliminary U.S. Pediatric Influenza Vaccine Effectiveness (VE), 2024-25, in CDC Networks (ages 6 months through 17 yrs)

Network	VE (95% CI)
Outpatient Estimates	
New Vaccine Surveillance Network (NVSN)	**59%** (47–68)
U.S. Flu Vaccine Effectiveness Network (US Flu VE)	**32%** (1–54)
Virtual SARS-CoV-2, Influenza, and Other respiratory viruses Network (VISION)	**60%** (56–63)
Inpatient Estimates	
New Vaccine Surveillance Network (NVSN)	**63%** (41–76)
Virtual SARS-CoV-2, Influenza, and Other respiratory viruses Network (VISION)	**78%** (60–89)

Interim Estimates of 2024–2025 Seasonal Influenza Vaccine Effectiveness — Four Vaccine Effectiveness Networks, United States, October 2024–February 2025 | MMWR

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2025-26 Influenza Season | MMWR

Preliminary U.S. Adult Influenza Vaccine Effectiveness (VE), 2024-25 in CDC Networks (ages ≥18 yrs)

Network	VE (95% CI)
Outpatient Estimates	
U.S. Flu Vaccine Effectiveness Network (US Flu VE)	**36%** (16–51)
Virtual SARS-CoV-2, Influenza, and Other respiratory viruses Network (VISION)	**54%** (52–56)
Inpatient Estimates	
Investigating Respiratory Viruses in the Acutely Ill (IVY)	**41%** (28–52)
Virtual SARS-CoV-2, Influenza, and Other respiratory viruses Network (VISION)	**55%** (51–59)

Interim Estimates of 2024–2025 Seasonal Influenza Vaccine Effectiveness — Four Vaccine Effectiveness Networks, United States, October 2024–February 2025 | MMWR

Influenza A(H3N2) Virus, Subclade K and Influenza Vaccine Effectiveness (VE)

- **Early estimates of 2025-26 influenza VE against influenza A(H3N2) virus (subclade K predominant season) associated hospitalization in England remained within expected ranges of 70-75% for children and 30-40% for adults, suggesting that influenza vaccination remains an effective tool in preventing influenza-related hospitalizations this season.**
- **Influenza vaccine effectiveness networks are collecting real-world data to produce early estimates of influenza VE in the United States.**

Weekly US Influenza Surveillance Report: Key Updates for Week 48, ending November 29, 2025 | FluView | CDC;
Eurosurveillance | Early influenza virus characterisation and vaccine effectiveness in England in autumn 2025, a period dominated by influenza A(H3N2) subclade K

Influenza Testing

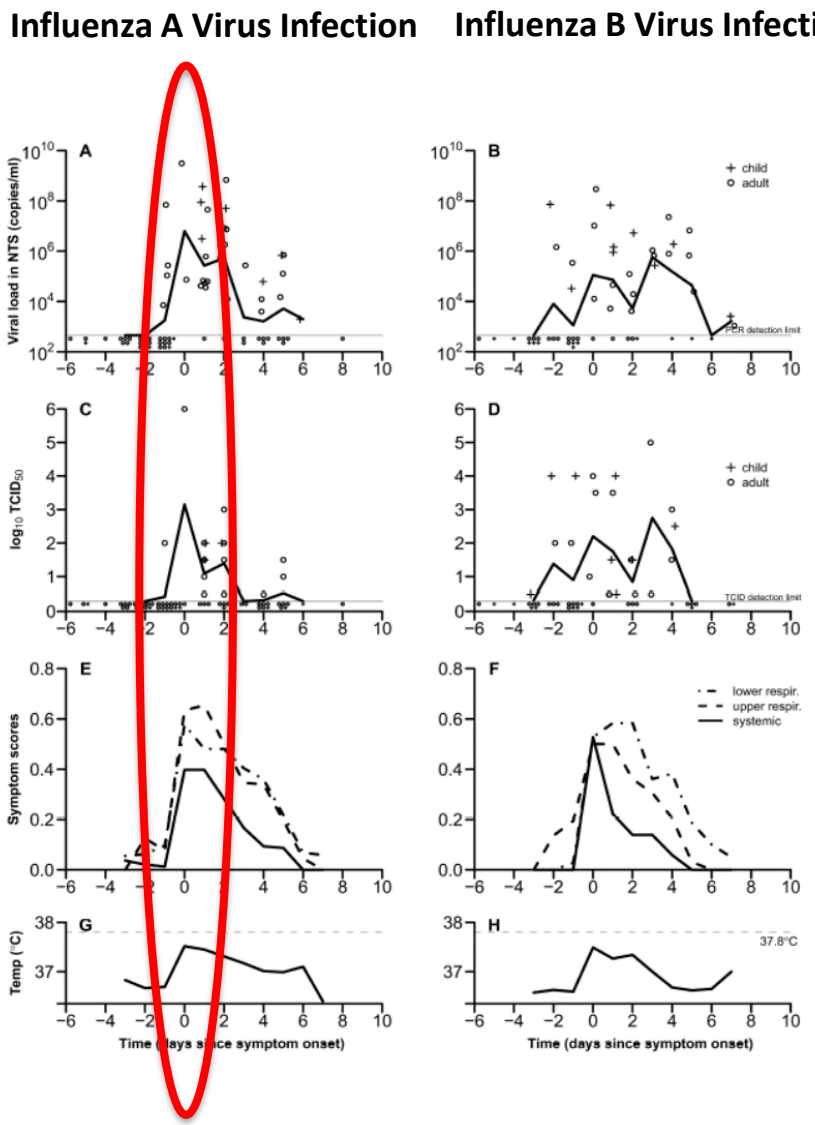
Influenza Diagnosis

- **Why Use Influenza Tests?**
  - **Clinical diagnosis may be inaccurate because non-specific signs and symptoms overlap with other respiratory virus infections**
    - Uncomplicated illness
    - Severe complications
  - **Clinical predictors of influenza**
    - Abrupt onset of fever with cough
    - Cough, fever, runny nose, muscle aches
    - Fever (temperature ≥38 °C) and cough

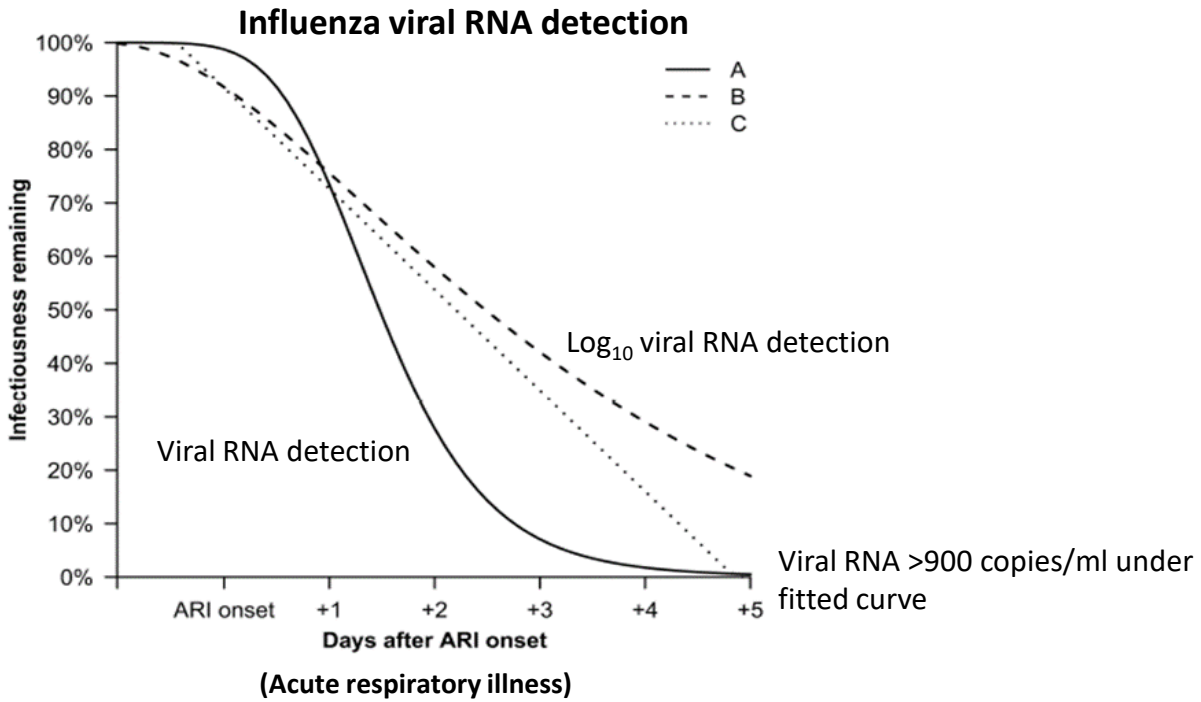
- **Influenza testing can inform clinical management decisions**
  - Whether to start antiviral treatment, may reduce antibiotic prescribing, may reduce use of other tests, inform infection prevention and control measures

https://www.fda.gov/medical-devices/in-vitro-diagnostics/influenza-diagnostic-tests

Influenza Viral Shedding Typically Peaks Within 24 Hours of Illness Onset



- **Influenza viruses can be detected in the upper respiratory tract one day before illness onset; virus levels peak within 24 hours after onset**
- **Highest infectious period is within 3 days after onset**
  - **Young children can be infectious for longer periods**
  - **Critically ill patients might have longer influenza viral replication in the lower respiratory tract**



(Acute respiratory illness)

Lau J Infect Dis 2010; Ip Clin Infect Dis 2017

Respiratory Specimens for Detecting Influenza Viruses

- **Upper respiratory tract**
  - **Influenza viruses are generally detectable for 3-4 days by antigen detection; and 5-6 days by molecular assays in uncomplicated disease, longer in infants and immunocompromised**
    - ***Highest yield: Nasopharyngeal (NP) swabs** (ideally collected within 3-4 days of illness onset)*
      - Other acceptable specimens: nasal swabs, NP aspirates, nasal aspirates, combined nasal and throat swabs
  - **Slower clearance of influenza viruses in severe disease**
  - ***Influenza viral replication and viral RNA detection may be prolonged with corticosteroids, immunosuppression***
- **Lower respiratory tract**
  - **Higher, prolonged viral replication in severe lower respiratory tract (LRT) disease**
    - ***Influenza viruses may be detectable in LRT specimens when cleared from the upper respiratory tract***
      - **RT-PCR was negative in 10-19% of patients in upper respiratory tract specimens versus lower respiratory tract (BAL specimens) for influenza A(H1N1)pdm09 viral RNA**

Rello Crit Care 2009; Fleury Eurosurveillance 2009; Blyth NEJM 2009

Influenza Tests Available

- **Wide range of diagnostic tests to detect influenza viruses in respiratory specimens to help guide clinical management**
  - Differ by time to produce results, information provided, approved respiratory specimens, approved clinical settings, and **accuracy**
    - **Antigen detection** (FDA-cleared/EUA/authorized single-plex, multiplex)
      - FDA-EUA multiplex assays, includes home tests (e.g., also detects SARS-CoV-2)
      - FDA-authorized multi-plex OTC/home test (e.g., also detects SARS-CoV-2)
    - **Nucleic acid detection** (molecular) FDA-cleared/EUA/authorized single-plex, multiplex)
      - Multiplex assays (e.g., also detects SARS-CoV-2, some detect RSV)
      - OTC/Home test (self-collected anterior nasal swabs (≥14 yrs) or adult-collected (≥2 yrs)
    - **Point-of-care assays** (CLIA-waived)
    - **Moderately complex** (requires clinical laboratory)
    - **Highly complex** (large clinical laboratories, public health labs)

EUA = Emergency use authorization; OTC = over the counter; CLIA = Clinical Laboratory Improvement Amendments 1988

https://www.fda.gov/medical-devices/in-vitro-diagnostics/influenza-diagnostic-tests

Influenza Tests Available in Clinical Settings*

Test	Method	Time to Results	Performance	Notes†
Rapid diagnostic test	Antigen detection	10 min	Low to moderate sensitivity; high specificity	Negative results may not rule out influenza; most assays are approved for point-of-care use; multiplex assays can identify and distinguish among influenza A, influenza B, and SARS-CoV-2
Rapid molecular assay	Viral RNA detection	15–30 min	Moderately high to high sensitivity; high specificity	Negative results may not rule out influenza; some assays are approved for point-of-care use; multiplex assays can identify and distinguish among influenza A, influenza B, and SARS-CoV-2
Immunofluorescence assay	Antigen detection	2–4 h	Moderate sensitivity; high specificity	Negative results may not rule out influenza; requires trained laboratory personnel with fluorescent microscope in a clinical laboratory
Molecular assay	Viral RNA detection	60–80 min for some assays; up to 4–6 h for others	High sensitivity; high specificity	Negative results may not rule out influenza; multiplex assays can identify and distinguish among influenza A, influenza B, and SARS-CoV-2

Multiplex Antigen detection 15 min
(Influenza A/B, SARS-CoV-2)

Multiplex Viral RNA detection 36-45 min
(Influenza A/B, SARS-CoV-2, RSV)

Multiplex Viral RNA detection ≥60 min
(e.g., Influenza A/B, SARS-CoV-2, RSV, other viral targets)

***Proper interpretation of test results is very important, especially interpreting negative results**

Uyeki Annals of Int Med 2021

Recommended Influenza Tests

- **Outpatients:**
  - **Rapid influenza molecular assays are recommended over rapid influenza antigen tests** (due to higher sensitivities to detect influenza viruses in respiratory specimens)
- **Hospitalized patients:**
  - **RT-PCR or other influenza molecular assays are recommended**
    - **Rapid antigen detection tests and immunofluorescence assays are not recommended and should not be used unless molecular assays are not available**
  - **Immunocompromised patients: Multiplex RT-PCR assays targeting a panel of respiratory pathogens, including influenza viruses are recommended**

- ***Do not order viral culture for initial or primary diagnosis of influenza***
- ***Do not order serology for influenza***
  - **Results from a single serum specimen cannot be reliably interpreted, and collection of paired acute and convalescent sera 2-3 weeks apart are needed; testing at specialized laboratories**

Uyeki IDSA 2018 Influenza Clinical Practice Guidelines Clin Infect Dis 2019

Self-knowledge Check: Which influenza tests for respiratory specimens are recommended to inform clinical management of hospitalized patients with suspected influenza (select all that apply):

A. Rapid influenza molecular assays
B. Rapid shell vial culture
C. RT-PCR influenza assays
D. Multiplex rapid antigen tests
E. Multiplex immunofluorescence viral respiratory panel assays
F. Multiplex molecular assays

Answer: The following influenza tests for respiratory specimens are recommended to inform clinical management of hospitalized patients with suspected influenza:

A. **Rapid influenza molecular assays**
B. Rapid shell vial culture
C. **RT-PCR influenza assays**
D. Multiplex rapid antigen tests
E. Multiplex immunofluorescence viral respiratory panel assays
F. **Multiplex molecular assays**

Rationale: Molecular influenza assays are recommended due to high sensitivities to detect influenza viruses in respiratory specimens. However, antigen tests, including multiplex immunofluorescence and multiplex antigen tests, and viral culture are not recommended.

Influenza Antiviral Treatment

Recommended Antivirals for Treatment of Influenza, U.S. 2025-2026

Four FDA-approved antivirals are recommended (no evidence of resistance among circulating seasonal influenza A and B viruses)

- All demonstrated efficacy in randomized clinical trials (RCTs), FDA-approved for early treatment (<2 days of illness onset) in outpatients with uncomplicated influenza
- Neuraminidase inhibitors (NAIs): block release of influenza viruses from infected cells
  - **Oseltamivir, Zanamivir, Peramivir**
- Cap-dependent endonuclease inhibitor: inhibit influenza viral replication
  - **Baloxavir marboxil**

Antiviral Drug	Route of Administration	Recommended Ages for Treatment
Oseltamivir	Oral (twice daily x 5d)	All ages
Zanamivir	Inhaled (twice daily x 5d)	≥7 years
Peramivir	Intravenous (single infusion)	≥6 months
Baloxavir	Oral (single dose)	≥5 years

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

Antiviral Treatment

Focused on prompt treatment of persons with severe disease and those at increased risk of influenza complications:

- **Antiviral treatment is recommended and has the greatest clinical benefit when started *as soon as possible* for patients with confirmed or suspected influenza who are:**
  - **Hospitalized*** (without waiting for testing results) **(oral/enteric oseltamivir)**
  - **Outpatients with complicated or progressive illness of any duration (oral oseltamivir)**
  - **Outpatients at high risk for influenza complications (oral oseltamivir or oral baloxavir)**

- Antiviral treatment can be considered for any previously healthy, non-high-risk outpatient with confirmed or suspected influenza (e.g. with influenza-like illness) on the basis of clinical judgment, if treatment can be initiated within 48 hours of illness onset; including empiric treatment (e.g. in-person visit or via telemedicine) **(e.g. oral oseltamivir or oral baloxavir)**

**Based on Observational studies*

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

Special Populations

CDC Recommendations

- **Pregnant Women**
  - **Oseltamivir is recommended for treatment of pregnant women and up to 2 weeks postpartum**
    - **Baloxavir is *not recommended*** for treatment of pregnant women or breastfeeding mothers
      - No efficacy or safety data for baloxavir in pregnant or lactating women
      - Substantial evidence of oseltamivir safety for pregnancy and birth outcomes
- **Immunocompromised Persons**
  - **Prolonged influenza viral replication is a possibility, with emergence of antiviral resistant viruses during/after treatment**
    - Monitoring for antiviral resistance is advised
    - Infection prevention and control precautions recommended to reduce nosocomial transmission risk
  - **Neuraminidase inhibitor treatment is recommended (e.g., oseltamivir)**
  - **Baloxavir is *not recommended* (greater risk of resistance emergence than oseltamivir)**

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

Oseltamivir Efficacy in Uncomplicated Influenza

RCTs have shown that oseltamivir treatment has significant clinical benefit when started within 36-48 hours after illness onset versus placebo

- Pooled meta-analysis of 5 RCTs in children (oseltamivir n=770 vs. placebo n=838)
  - **Treatment started within 48 hours of onset:**
    - **Reduced illness duration by 18 hours overall and by 30 hours in children without asthma** (-29.9 hours; 95% CI: -53.9 to -5.8 hours)
    - **Reduced risk of otitis media by 34%** (RR 0.66; 95% CI: 0.47-0.95)

- Pooled meta-analysis of 9 RCTs in adults (oseltamivir n=1565 vs. placebo n=1295)
  - **Treatment started within 36 hours of onset:**
    - **Reduced illness duration by 25.2 hours** (-25.2 hours; 95% CI: -36.2 to -16.0 hours)
    - **44% Reduced risk of lower respiratory tract complications occurring >48 hours after treatment requiring antibiotics** (RR: 0.56; 95% CI: 0.42 to 0.75; p=0.0001)

Malosh Clinical Infect Dis 2018; Dobson Lancet 2015

Oseltamivir Effectiveness in Hospitalized Influenza Patients

- **Observational studies report greatest clinical benefit when antiviral treatment (mostly oseltamivir) is started as soon as possible in hospitalized influenza patients:**
  - **18% reduction in mortality with neuraminidase inhibitor (NAI) treatment versus no treatment** [N=25,001 lab-confirmed influenza A(H1N1)pdm09 patients, aOR: 0.82, 95% CI: 0.70-0.95, p=0.0104]
  - **40% higher odds of death within 30 days of hospitalization when NAI treatment was started 2-5 days after admission versus treatment started on day of admission** [N=26,233 patients with lab-confirmed influenza pneumonia (aOR, 1.40 [95% CI, 1.17–1.66])
  - **32% reduction in odds of ventilatory support** (aOR: 0.68 [95% CI: 0.54-0.85], p=0.001; **and 30% reduction in odds of death** (aOR: 0.70 [95% CI: 0.55-0.88], p=0.003) **with NAI treatment started within 2 days of symptom onset versus later treatment of influenza-related pneumonia** [N=5,978 with lab-confirmed/clinically diagnosed influenza A(H1N1)pdm09 pneumonia]
  - **19% reduction in duration of hospitalization with NAI treatment started on the day of admission versus none or later NAI treatment** (aIRR, 0.81 [95% CI, 0.78-0.85]; median decrease, 1.19 days [IQR, 0.85–1.55 days], N=18,309 lab-confirmed/clinically diagnosed influenza A(H1N1)pdm09 patients)
  - **NAI treatment started within 6 hours after hospital admission was associated with shorter duration of hospitalization versus starting antiviral treatment later** (p<0.001) (N=699 adults)

Muthuri Lancet Respiratory Med 2014; Tenforde Clin Infect Dis 2025; Muthuri Influenza Other Resp Viruses 2016; Venkatesan J Infect Dis 2020; Katzen Clinical Infect Dis 2018

Oseltamivir Effectiveness in Hospitalized Pediatric Influenza Patients

- **Observational studies report greatest clinical benefit when antiviral treatment (mostly oseltamivir) is started as soon as possible in hospitalized children:**
  - **Oseltamivir treatment started ≤2 days after symptom onset was significantly associated with shorter hospital duration** (adjusted HR 1.37, p=0.02) (N=309; hospitalized children, U.S.; 2012-2013)
  - **NAI treatment (nearly all oseltamivir) started ≤2 days after symptom onset was significantly associated with shorter ICU length of stay** (adjusted HR: 1.46, p=0.007) (N=299; ICU children, U.S.; 2010-2013)
  - **Children treated with oseltamivir <2 days after admission had shorter length of stay** (median 3 vs. 4 days), **lower odds of 7-day hospital readmission** (3.5%vs 4.8%; adjusted odds ratio [aOR], 0.72; 95%CI, 0.66-0.77), **fewer late ICU transfers** (2.4%vs 5.5%; aOR, 0.41; 95%CI, 0.37-0.46), and **lower odds of the composite outcome of death or ECMO* use** (0.9%vs 1.4%; aOR, 0.63; 95%CI, 0.54-0.73). (N=55,799 hospitalized children, U.S.; 2007-2020; median age 3.6 years; 59.5% were treated with oseltamivir within one day of admission)

*ECMO = extracorporeal membrane oxygenation

Malosh Clinical Infect Dis 2018; Campbell Pediatrics 2021; Walsh JAMA Pediatrics 2022

Baloxavir Efficacy in Uncomplicated Influenza

RCTs: Baloxavir treatment has similar clinical benefit to oseltamivir and significant clinical benefit vs. placebo in children and adults when started <48 hours after symptom onset

- Children (previously healthy, aged 1 to <12 yrs) (outpatients); Treatment started ≤48 hours of onset:
  - **Single-dose baloxavir (n=115) had similar median time to alleviation of influenza signs and symptoms (138 hours) versus 5 days of oseltamivir** (150 hours) (n=58)

- Adolescents and adults (aged ≥12 yrs) (outpatients); Treatment started ≤48 hours of onset:
  - **Single-dose baloxavir** (n=456) **significantly reduced influenza illness duration by a median of 26.5 hours vs. placebo** (n=231) **in *persons not at high-risk*** (95% CI, 72.6 to 87.1 hours; p<0.001)
    - **Median time to alleviation of symptoms was similar for baloxavir (53.5 hrs) and oseltamivir (53.8 hrs)**
    - **Baloxavir significantly reduced influenza viral RNA levels at 24 hours, and reduced infectious virus detection versus oseltamivir (24 hours vs. 72 hours, p<0.001)**
  - **Single-dose baloxavir** (n=388) **significantly reduced influenza illness duration by a median of 29 hours vs. placebo** (n=386) **in *persons with ≥1 high-risk condition*** (95% CI 14.6 to 42.8; p<0.0001)
    - **Median time to improvement of symptoms was similar for baloxavir (75.4 hrs) and oseltamivir (68.2 hrs)**
    - **Baloxavir significantly reduced median time to improvement of influenza B symptoms by 27 hours versus oseltamivir** (95% CI: 6.9 to 42.3 hours; p=0.025)

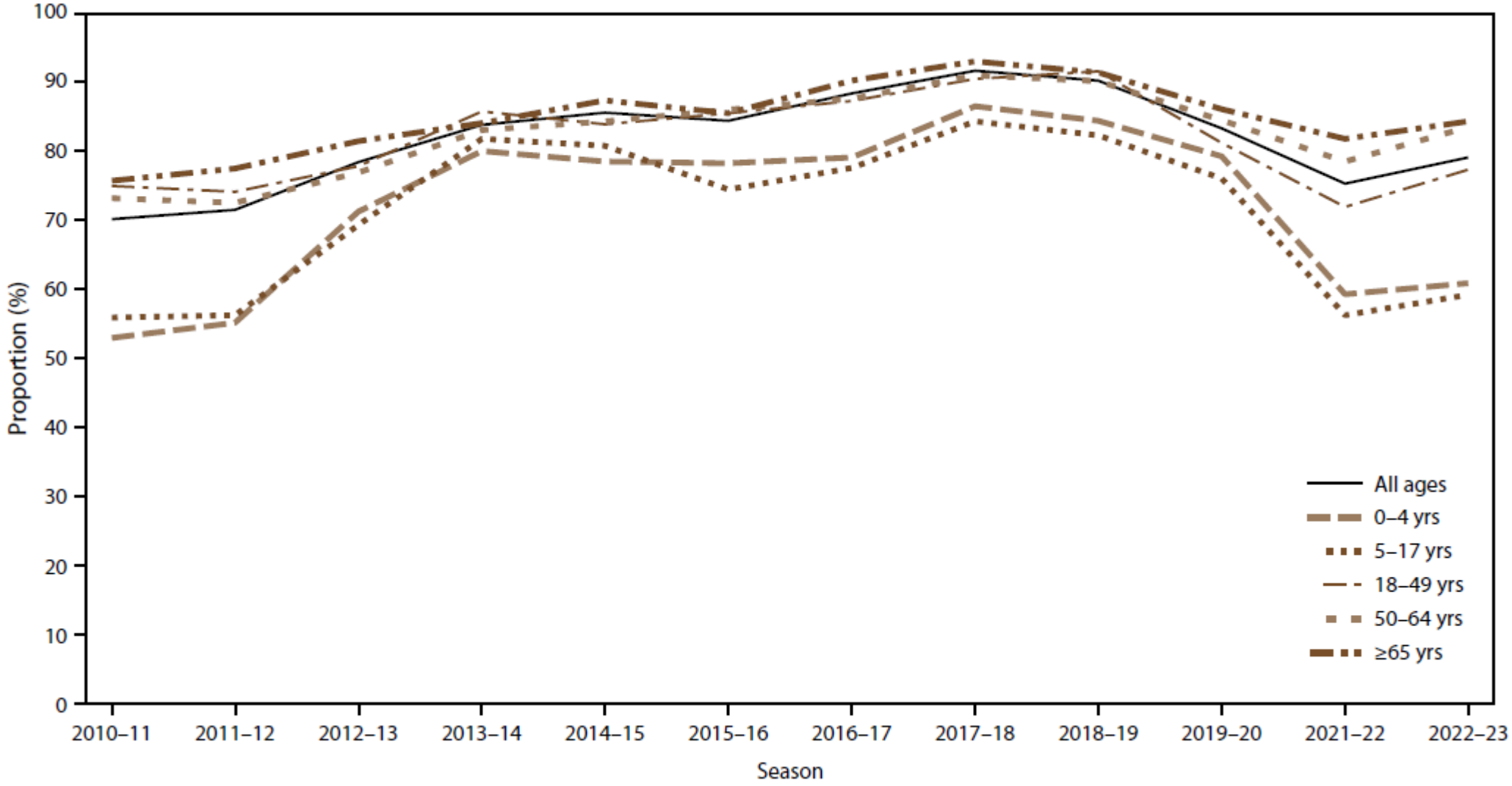
Baker Ped Infect Dis J 2020; Hayden NEJM 2018; Ison Lancet Infect Dis 2020

Pediatric Outpatients at Higher Risk for Influenza Complications with Medically Attended Laboratory-confirmed Influenza Who Received Antiviral Treatment, New Vaccine Surveillance Network, U.S., 2023-2024 (7 sites)

High-Risk Group	Receipt of Antiviral Treatment [n/N, (%)]
Children aged <5 years	**101/362 (28%)**
Children with a high-risk medical condition	**57/162 (35%)**
Children aged <5 years and a high-risk medical condition	**19/79 (39%)**
Asthma/reactive airway disease	41/122 (34%)
Chronic lung disease	45/128 (35%)
Chronic metabolic disease	8/11 (73%)
Blood disorders	5/17 (29%)
Cardiovascular disease	7/14 (50%)
Neurologic disorders	13/33 (39%)
Immunocompromised	2/3 (67%)
Prematurity (aged <24 months)	5/11 (45%)

Frutos MMWR November 14, 2024

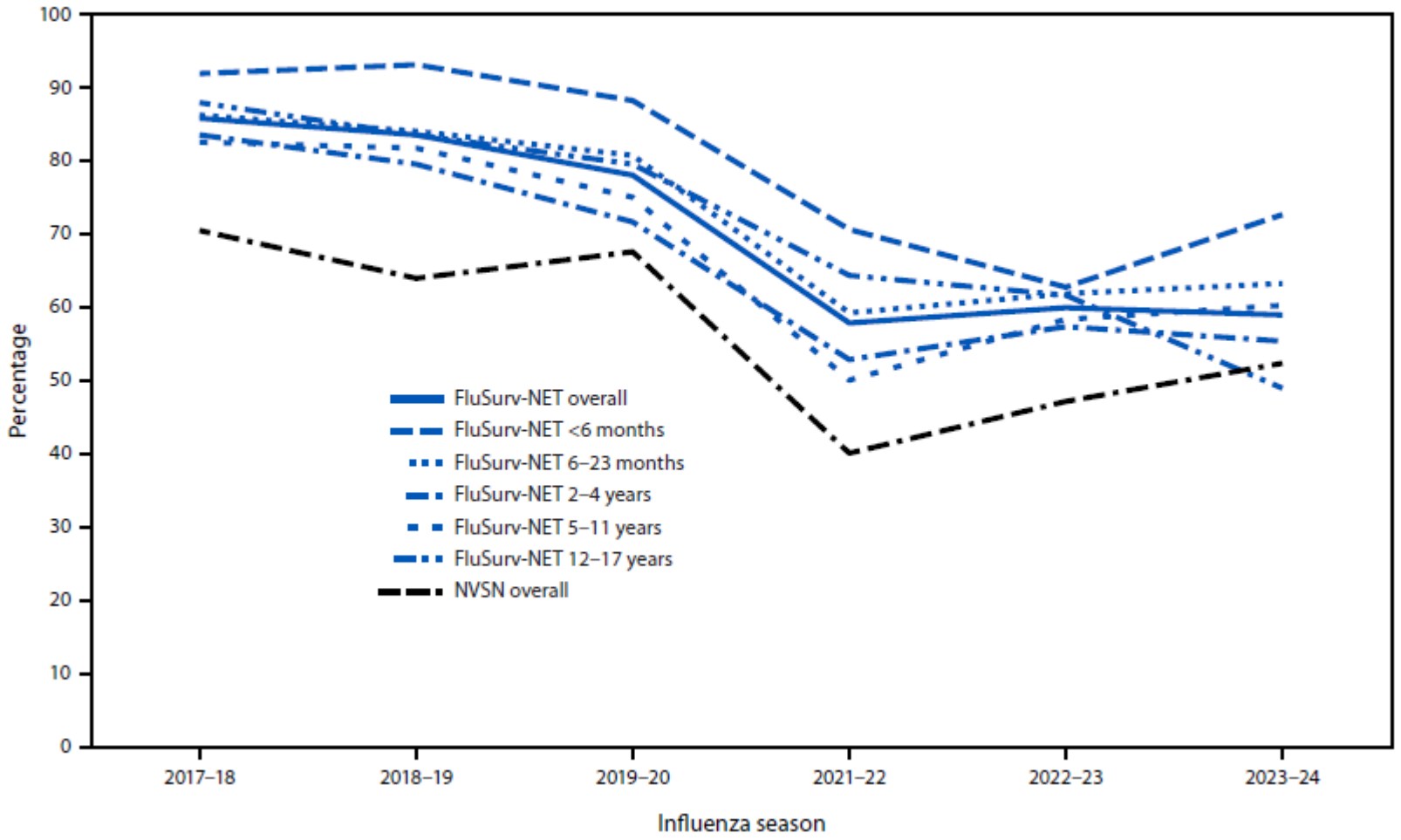
Antiviral Treatment of Hospitalized Influenza Patients in the U.S. Has Declined



Naquin MMWR Surveillance Summaries October 31, 2024

Antiviral Treatment of Children with Influenza who are Hospitalized or at High-Risk for Influenza Complications in the U.S. Has Declined

FIGURE. Antiviral treatment among children and adolescents aged <18 years hospitalized with laboratory-confirmed influenza, overall and by age group — two multistate surveillance networks,* United States, 2017–18 to 2023–24 influenza seasons†,§



1213 children hospitalized with lab-confirmed influenza, 2016-2020 (NVSN)

- **53.8% received antiviral treatment**
- Symptom duration >2 days associated with lower odds of antiviral treatment (aOR=0.40; 95% CI: 0.30-.052)

1931 children at high-risk with lab-confirmed influenza presented to an ED (NVSN)

- **32% prescribed antiviral treatment**

Frutos MMWR Nov. 14, 2024; Antoon Clin Infect Dis 2025; Antoon Influenza Other Resp Virus 2025

Self-knowledge Check: Which antiviral is recommended for outpatient treatment of influenza in an older adult resident of a long-term care facility who presents with 3 days of poor appetite, decreased activity, and mild cough, and tests positive for influenza? (Select the best answer)

A. Zanamivir
B. Rimantadine
C. Baloxavir
D. Peramivir
E. Oseltamivir

Self-knowledge Check: Which antiviral is recommended for outpatient treatment of influenza in an older adult resident of a long-term care facility who presents with 3 days of poor appetite, decreased activity, and mild cough, and tests positive for influenza? (Select the best answer)

A. Zanamivir
B. Rimantadine
C. Baloxavir
D. Peramivir
E. **Oseltamivir**

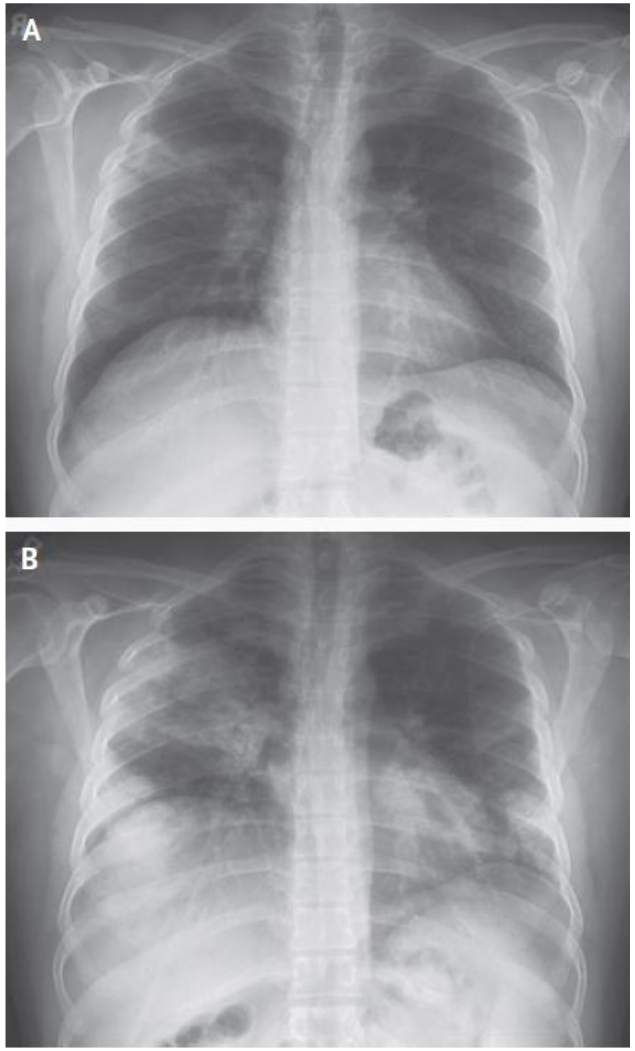
Rationale: Oseltamivir treatment is recommended for patients at high risk for influenza complications, even if presenting >3 days after symptom onset. Rimantadine is not recommended. Zanamivir, Baloxavir, and Peramivir are recommended for treatment within 2 days of symptom onset.

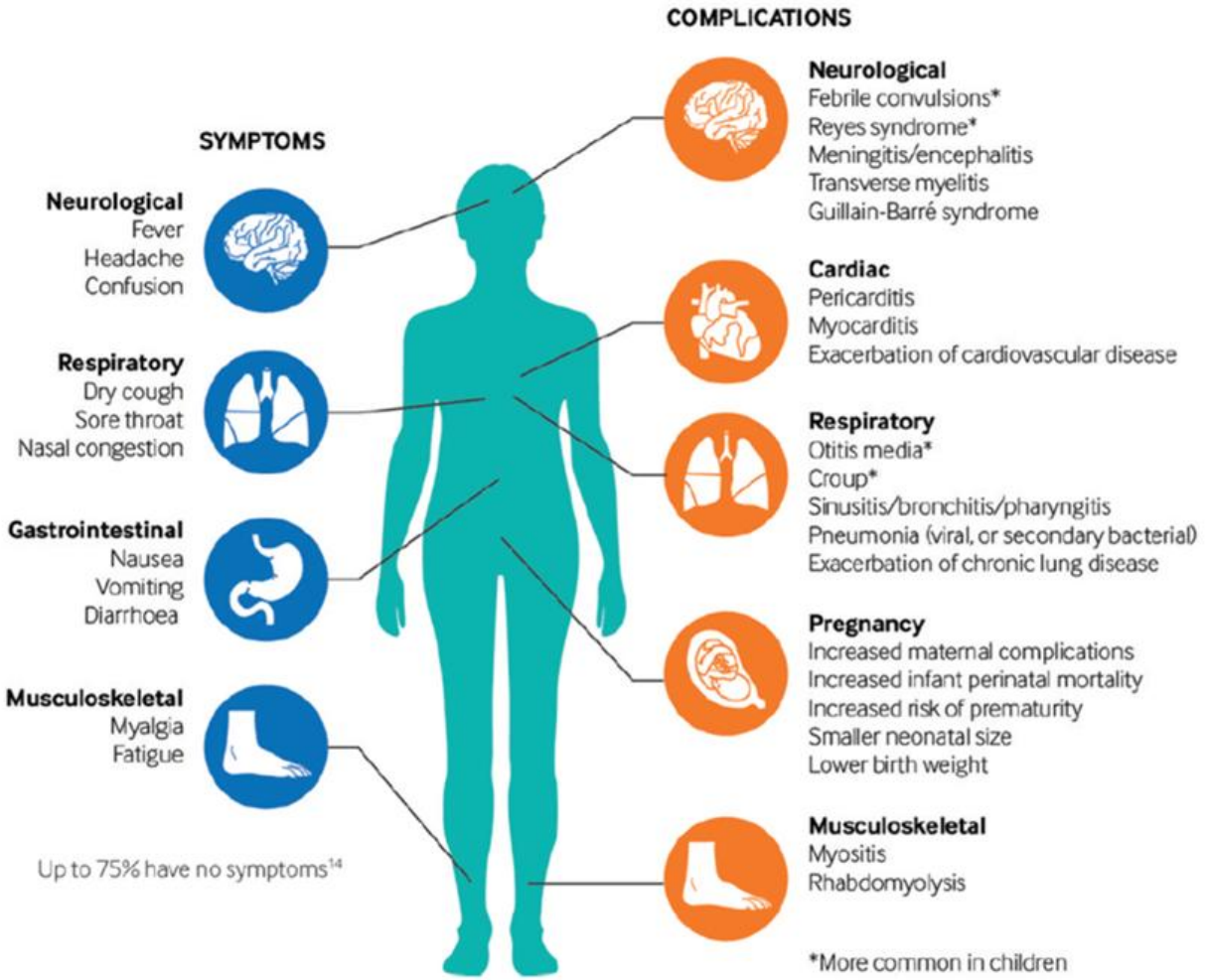
Key Points

- **2024-2025 was a high severity U.S. influenza season**
  - High morbidity & mortality, wide range of respiratory and non-respiratory complications
- **Influenza vaccine effectiveness (VE) in 2024-2025 was moderate against uncomplicated illness and severe influenza in the U.S.**
  - Influenza activity is increasing in the U.S. The time to get vaccinated for 2025-2026 is now for persons aged ≥6 months who have not received influenza vaccine this season
- **Molecular influenza tests are recommended**
  - Rapid molecular tests for outpatients; rapid and other molecular tests for hospitalized patients (including multiplex assays)
- **Influenza antiviral treatment is recommended as soon as possible for:**
  - **Outpatients: at increased risk for influenza complications**
    - Ideally within 2 days of illness onset: Oseltamivir or Baloxavir
    - For progressive or severe disease (regardless of time since onset): Oseltamivir
  - **Hospitalized patients:** Oseltamivir is recommended as soon as possible

Influenza Prevention and Control Resources from CDC

- **CDC Weekly U.S. Influenza Surveillance Report (FLUVIEW)**
  https://www.cdc.gov/fluview/index.html
- **Influenza Disease Burden Estimates**
  https://www.cdc.gov/flu-burden/php/about/index.html
- **2025-2026 ACIP Influenza Vaccine Recommendations**
  https://www.cdc.gov/mmwr/volumes/74/wr/pdfs/mm7432a2-H.pdf
- **Influenza Testing and Specimen Collection**
  https://www.cdc.gov/flu/hcp/testing-methods/index.html
- **Antiviral Treatment**
  https://www.cdc.gov/flu/hcp/antivirals/summary-clinicians.html
- **Infection Prevention and Control Measures**
  https://www.cdc.gov/flu/hcp/infection-control/healthcare-settings.html





Uyeki NEJM 2009; Ghebrehewet BMJ 2016

To Ask a Question

- Using the MS Teams Platform
  - The ability to ask questions during the live webinar is limited to the first 1,000 attendees who join the webinar.
  - Questions may be submitted after the live session by emailing coca@cdc.gov.
- If you are a patient, please refer your question to your healthcare provider.
- If you are a member of the media, please direct your questions to CDC Media Relations at 404-639-3286 or email media@cdc.gov.

TRAIN

- CDC has fully transitioned from Training and Continuing Education Online (TCEO) to **CDC TRAIN** (https://www.train.org/cdctrain).
- **Transcripts & Certificates**: You can access and download CE transcripts and certificates in TCEO through the end of 2025.
- Instructions will be available on both platforms, and a learner support team will be available to answer questions.

Continuing Education

- All continuing education for COCA Calls is issued online through CDC TRAIN at CDC TRAIN (https://www.train.org/cdctrain).

- To receive continuing education (CE) for **WC4520R-121125**—2025 – 2026 Clinical Recommendations for Seasonal Influenza Prevention and Control, please visit CDC TRAIN and search for the course in the Course Catalog using **WC4520R-121125**. Follow the steps below by **January 12, 2026**. The registration code is **COCA121125**.

- To receive continuing education (CE) for **WD4520R-121125**—2025 – 2026 Clinical Recommendations for Seasonal Influenza Prevention and Control, please visit CDC TRAIN and search for the course in the Course Catalog using **WD4520R-121125**. Follow the steps below between **January 13, 2026**, and **January 13, 2028**.

Today's COCA Call will be Available to View On-Demand

- **When:** Next week
- **What:** Closed captioned video and transcript
- **Where:** On the COCA Call webpage: https://www.cdc.gov/coca/hcp/trainings/seasonal_influenza_2025-2026.html

Additional Resources

- Continue to visit https://www.cdc.gov/coca/hcp/trainings/index.html to get more details about upcoming COCA Calls.

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Thank you for joining us today!

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