



# *Influenza Vaccination: Evaluating Your Options and Barriers to Access*

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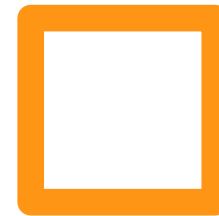
# Disclosures

-I'm really busy!!



# Objectives

- Know current clinical burden of disease prevented by vaccination
- Review vaccines available against Influenza viral illness
- Highlight what current schedule and practices are
- Sharing information with families to facilitate vaccine hesitant families to choose vaccination





# Influenza viral illness

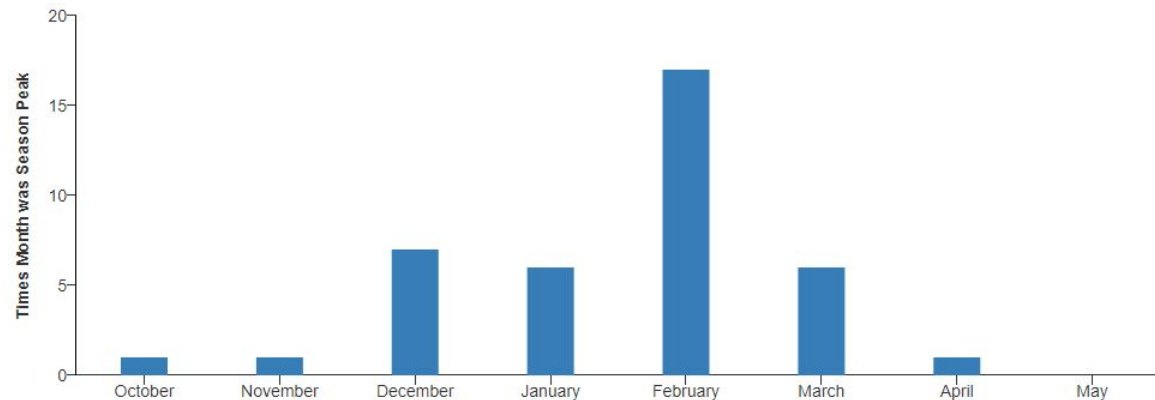
- Influenza (flu) is a respiratory illness caused by viruses
  - Infect the nose, throat, and lungs.
  - Highly contagious
- There are two main types of influenza (flu) viruses: types A and B.
- Human influenza Viruses are the ones responsible for our seasonal variation
- Certain groups are likelier to have more severe illness and higher rates of deathly illness.



# Flu Season

- Detected year round
- Activity begins increasing around October
- Holidays through February correlates with peak Flu activity

Flu activity peak months in the U.S. from the 1982-1983 through 2021-2022 flu seasons\*



\* There was no discernible peak in activity during the 2020-2021 season due to the uncharacteristically low level of influenza virus circulation that season.

[Flu Season | CDC](#)





# Influenza: how it infects

- Droplets drop
  - When coughing/sneezing or talking
  - Travel a distance of 6 feet
  - Surfaces
- Symptoms 2-4 days after exposure
- Most contagious first 2-4 days after symptoms
- Asymptomatic spread is possible

[How Flu Spreads | CDC](#)



# Symptoms

- **Fever** (usually above 100.4°F or 38°C)
- Chills
- Headache, body aches, and fatigue
- Sore throat
- Dry, hacking cough
- Stuffy, runny nose
- Throwing up and diarrhea

[The Flu: What Parents Need to Know - HealthyChildren.org](#)



# When to worry

## Emergency Warning Signs of Flu Complications

People experiencing these warning signs should obtain medical care right away.

### In children

- Fast breathing or trouble breathing
- Bluish lips or face
- Ribs pulling in with each breath
- Chest pain
- Severe muscle pain (child refuses to walk)
- Dehydration (no urine for 8 hours, dry mouth, no tears when crying)
- Not alert or interacting when awake
- Seizures
- Fever above 104 degrees Fahrenheit that is not controlled by fever-reducing medicine
- In children younger than 12 weeks, any fever
- Fever or cough that improve but then return or worsen
- Worsening of chronic medical conditions

### In adults

- Difficulty breathing or shortness of breath
- Persistent pain or pressure in the chest or abdomen
- Persistent dizziness, confusion, inability to arouse
- Seizures
- Not urinating
- Severe muscle pain
- Severe weakness or unsteadiness
- Fever or cough that improve but then return or worsen
- Worsening of chronic medical conditions

These lists are not all inclusive. Please consult your medical provider for any other symptom that is severe or concerning.

[Flu Symptoms & Complications | CDC](#)

# People at higher risk of complications

- Children with complex chronic healthcare needs
- Patients who are immune suppressed
- People with obesity
- Baseline lung disease or history of smoking

## Information for Specific High Risk Groups

 [People 65 Years and Older](#)

 [HIV/AIDS](#)

 [Pregnant People](#)

 [Cancer](#)

 [Young Children](#)

 [Children with Neurologic Conditions](#)

 [Asthma](#)

 [Heart Disease & Stroke](#)

 [Diabetes](#)

[About Flu | CDC](#)

# Influenza Complications

- Most people will recover in a few days to less than two weeks
  - High risk people are likelier to develop complications which include:
    - Pneumonias of multiple origin
    - Brain inflammation (encephalitis)
    - Heart inflammation (Myositis)
    - Muscle inflammation (myositis and rhabdomyolysis)
    - Multi-organ failure (respiratory, kidney failure)
    - Excessive inflammatory response (SIRS)
    - Death
    - Sinus and ear infections
    - Worsen asthma symptoms
    - Worsen heart disease symptoms

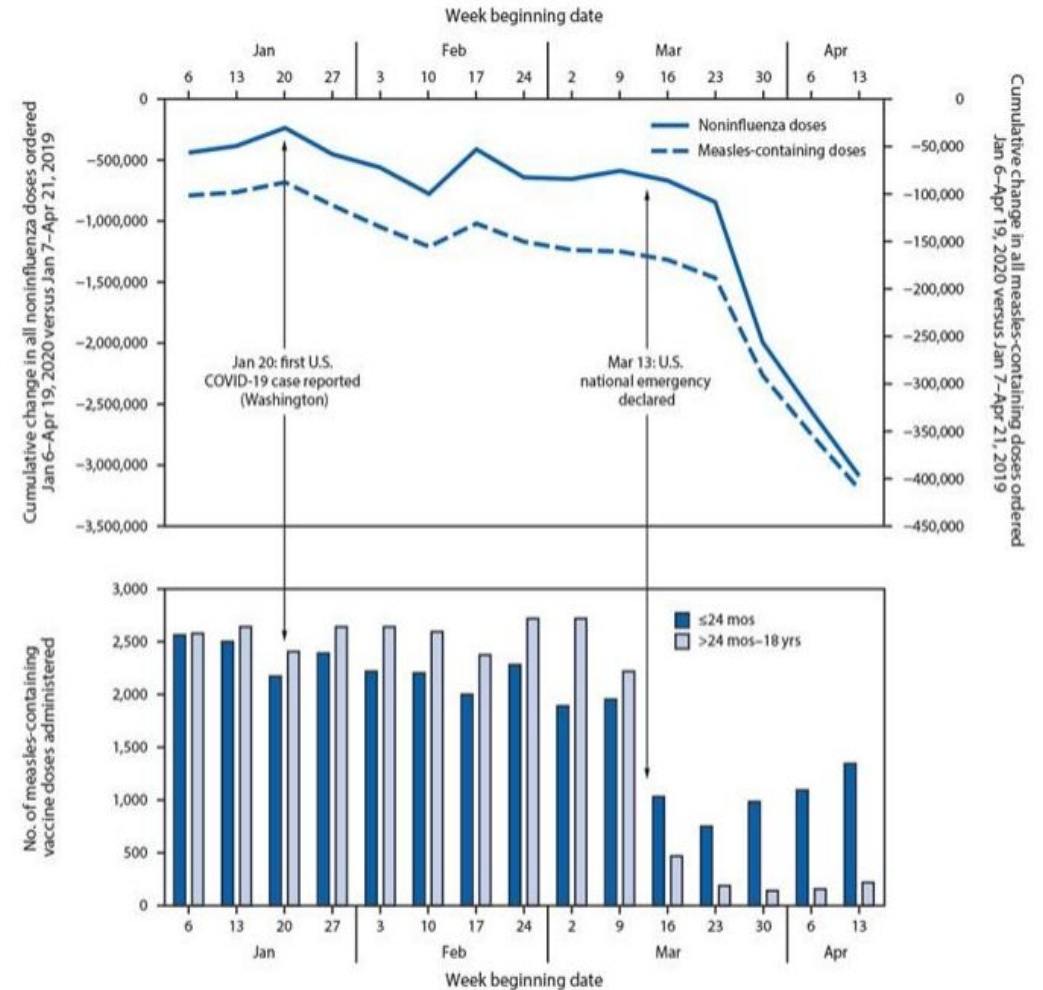
# Treatment

- Supportive care
- Fever reducers (avoid aspirin products)
- Antivirals
- Dependent on complications

# The Great Catch up

- Pandemic disrupted vaccination efforts and supply chains
- People concerned of getting Covid 19

Santoli JM, et al. 2020;69(19):591-593. Morb Mortal Weekly Rep.



# Seasonal numbers

2010-2020 Numbers



[Disease Burden of Flu | CDC](#)

## Factors that can change the severity of the season

- What subtypes of Influenza viruses circulate
- How effective the vaccine is against influenza that year
- Vaccination numbers
- When season begins
- What other circulating viruses are present

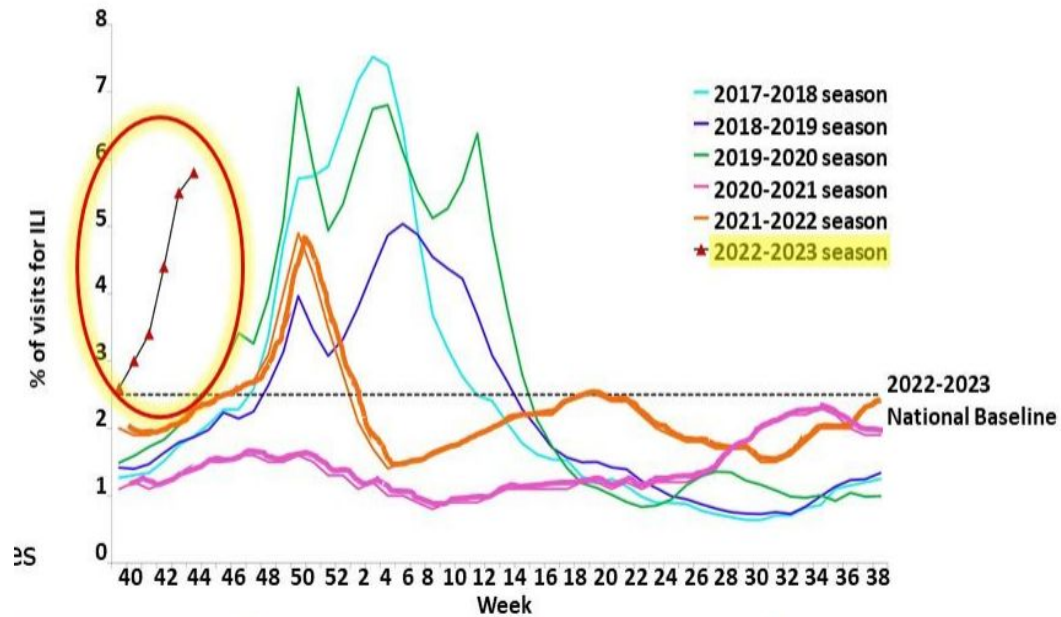
# This Season

**Week 49, Dec 10, 2022**

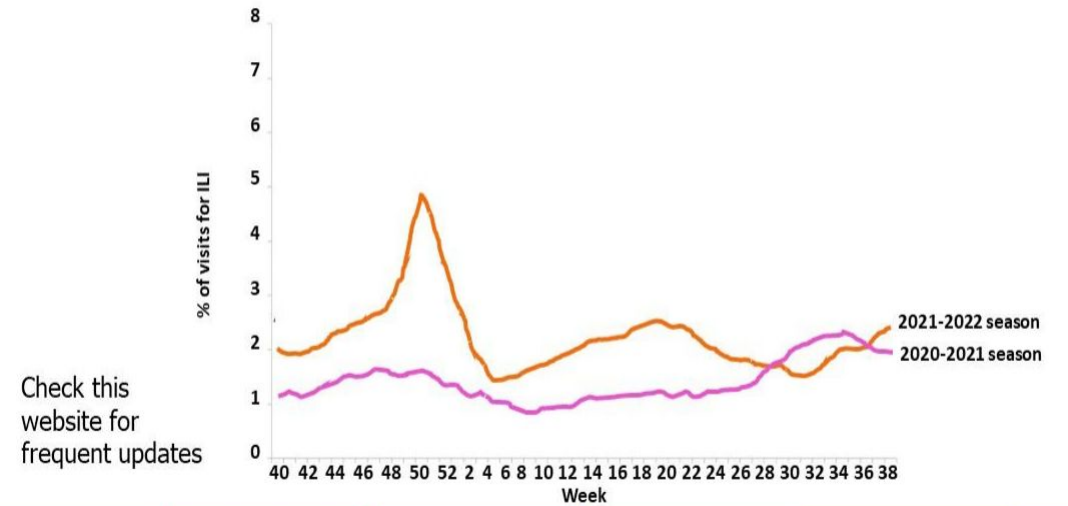


Centers for Disease Control and Prevention (CDC). [Weekly US Map: Influenza Summary Update | CDC](#)

# This season



## Percentage of Outpatient Visits for Respiratory Illness Reported by US Outpatient ILINet; Weekly National Summary

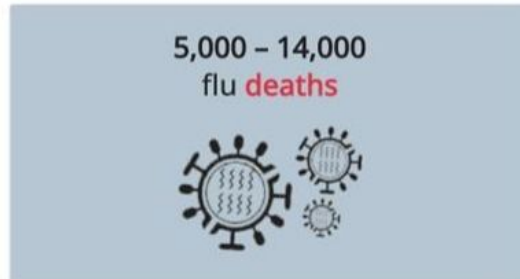
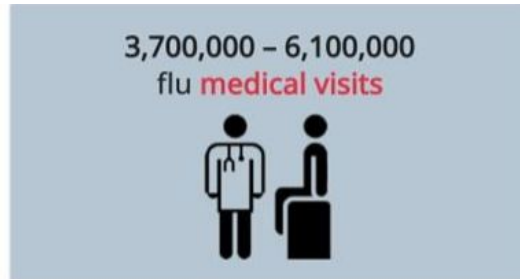


Check this website for frequent updates

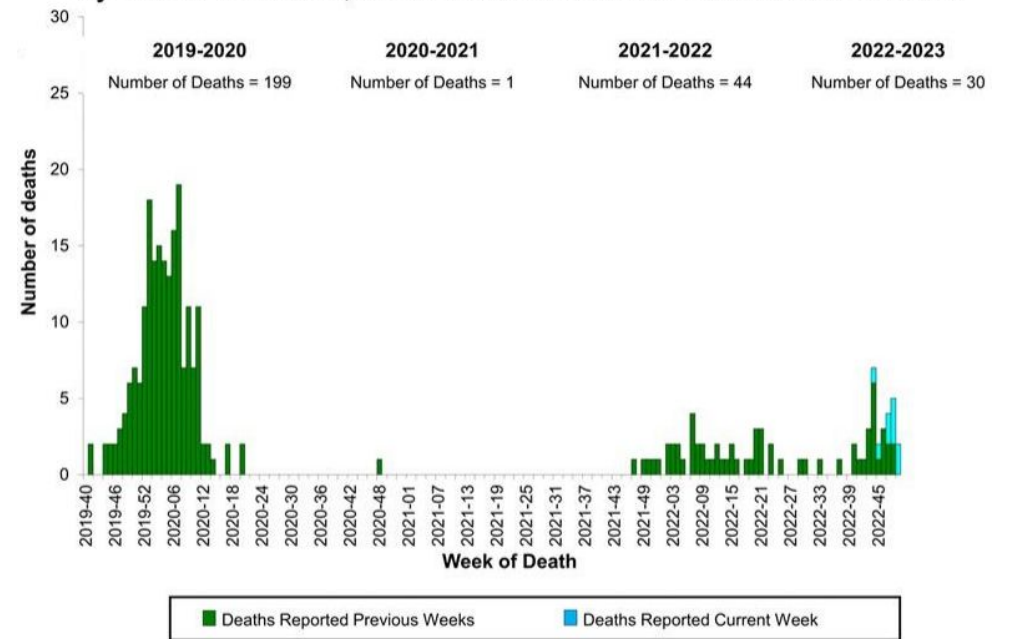
[Weekly U.S. Influenza Surveillance Report | CDC](#)



# December 2022



Influenza-Associated Pediatric Deaths  
by Week of Death, 2019-2020 season to 2022-2023 season



<https://www.cdc.gov/flu/about/burden/preliminary-in-season-estimates.htm>

# Winter 2022

- CDC estimates that during the 2021-2022 season, flu vaccination prevented **1.8 million** flu-related illnesses, **1,000,000** medical visits, **22,000** hospitalizations, and nearly **1,000** deaths ([Table 1](#)).
- A [2021 study](#) showed that among adults hospitalized with flu, vaccinated patients had a 26% lower risk of intensive care unit (ICU) admission and a 31% lower risk of death from flu compared with those who were unvaccinated.
- Vaccinated patients were 59% less likely to be admitted to the ICU than those who had not been vaccinated

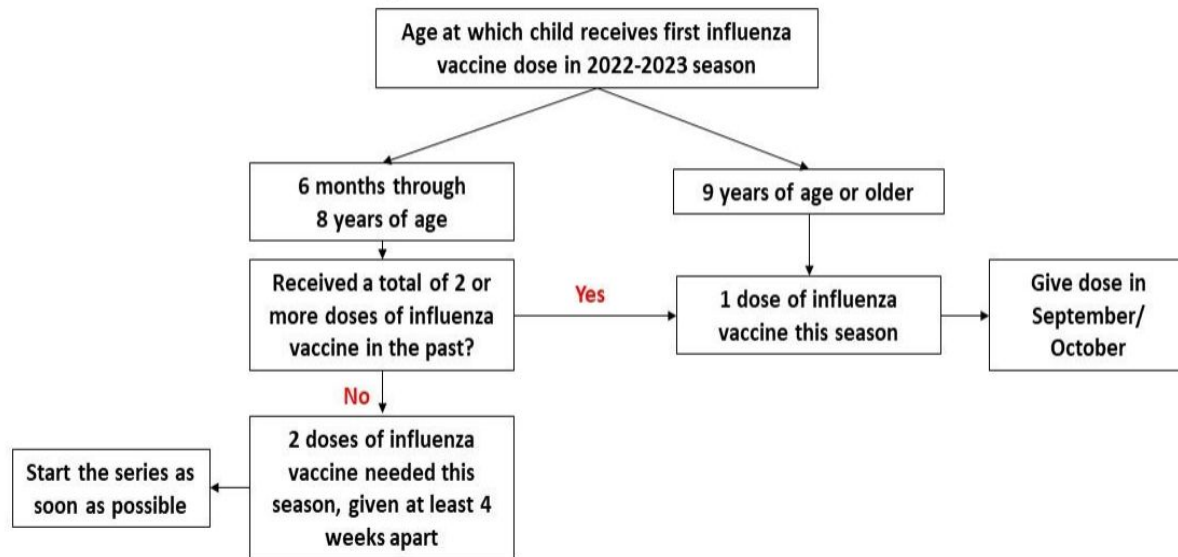
# Winter 2022

- 106 reported pediatric flu deaths this season
- 41 occurred in children younger than 5 years old
- 3 occurred in children younger than 6 months
- The remaining 65 deaths occurred in children 5 years to 17 years old.
- 97 pediatric deaths that were among children with known information on medical conditions,
- 40 had a pre-existing medical condition that would place them at increased risk of developing serious flu complications.
- Half of these deaths were in otherwise healthy children.
- 103 children were eligible for vaccination, and vaccination status was known for 81 of those children;
- **90% of those children were not fully vaccinated against flu. In past seasons, about 80% of children who died from flu have not been fully vaccinated.**

Pediatric Flu Deaths Top 100 this Season: Most Unvaccinated  
| CDC

# Influenza Schedule 2023

## Children 6 Months of Age and Older



Grohskopf LA, et al. Morb Mortal Weekly Rep. 2022;71(No. RR-1):1-28

- Adults and older children:
  - Upper arm/Deltoid
- Younger children
  - Anterolateral thigh
- Can be given with any other vaccine
- Can mix and match brands and presentations (with specific recommendations)

# Influenza Vaccines 2023

## All Vaccines Are Quadrivalent

Trade Name	Live or Non-live	Manufacturing	Dosage	Labeled Ages
Afluria	Non-live	Egg-based	0.25 mL 0.5 mL	6 mo-35 mo ≥ 3 yr
Fluarix	Non-live	Egg-based	0.5 mL	≥6 mo
Flucelvax	Non-live	Cell-based	0.5 mL	≥6 mo
Flulaval	Non-live	Egg-based	0.5 mL	6 mo
Fluzone	Non-live	Egg-based	0.25 or 0.5* mL 0.5 mL	6 mo-35 mo ≥ 3 yr
Flumist	Live	Egg-based	0.2 mL (0.1 mL/nostril)	2-49 yr
Flublock	Non-live	Recombinant	0.5 mL	≥18 yr

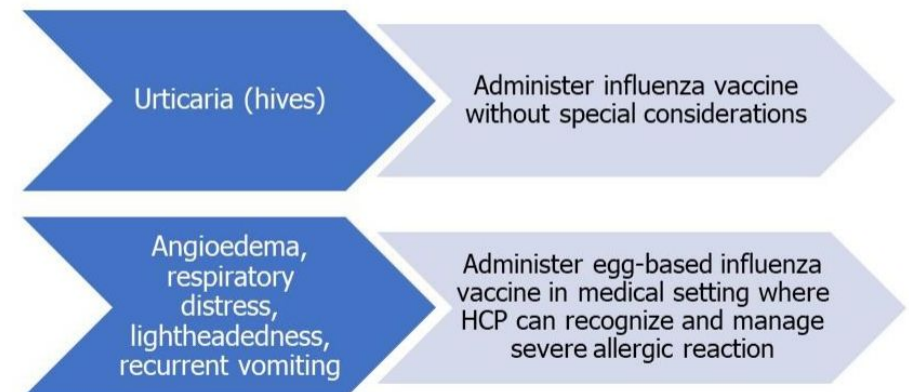
\*The approved dose volume per the package insert for Fluzone is **either** 0.25 mL or 0.5 mL for ages 6-35 mo. However, 0.25 mL prefilled syringes are not available.

Grohskopf LA, et al. Morb Mortal Weekly Rep. 2022;71(No. RR-1):1-28.

## • Contraindications

- Severe allergic reactions to any component
- Egg allergy for egg based vaccines if anaphylaxis to eggs

## ACIP Recommendations and Egg-based Influenza Vaccines



# Influenza Vaccines 2023

- Other Contraindications:

- Moderate or severe acute illness w/wo fever
- Covid 19 (isolation and tracking)
- History of past Guillain-Barre syndrome within 6 weeks of past influenza vaccination

Grohskopf LA, et al. Morb Mortal Weekly Rep. 2022;71(No. RR-1):1-2

- Contraindications for Live Attenuated vaccine:

- Severe allergic reaction
- Aspirin containing therapy
- Pregnancy
- Altered immunocompetence or immunosuppression
- Lack of spleen or spleen function
- CSF leak or cochlear implant
- Sharing household with immune suppressed individuals
- Asthmatic children 2-4 with recent wheezing
- Antiviral influenza treatment (48 hrs)

# Influenza Vaccines 2023

- Further precautions:
  - Asthma in  $\geq 5$ -year-old patients
  - Underlying medical conditions with higher risk for severe illness:
    - – Chronic pulmonary disease
    - Cardiovascular disorders
    - Renal dysfunction
    - Hepatic disorders
    - Neurologic disorders
    - Hematologic disorders
    - Metabolic disorders, including diabetes



# Vaccination matters!!

- Strong recommendations
- Vaccines are safe
- Vaccines are effective in preventing severe illness and death
- We want to know more when parents hesitant or have concerns
- Share evidence based resources/Ask for evidence based resources
- Community and family health





Discuss  
vaccines with  
every family  
when eligible. It  
is that important



# Vaccine hesitancy

- Parents want to choose the best for their kids
- They trust their pediatrician/PCP
- Vaccine confidence
- Ruler method
- We are not judging.
- We want to learn



# Takeaways

- Vaccination matters.
- Negative influenza outcomes can be avoided by vaccination
- It helps at the personal, familial and community level
- Complications are deathly
- We want to hear from you and talk about your concerns
- Pediatricians and PCP's want to help you make beneficial choices for your kids and family health



Thank you!!



# References/Resources

•[Influenza \(Flu\) | CDC](#)

•[About Flu | CDC](#)

•[Disease Burden of Flu | CDC](#)

•[Flu Season | CDC](#)

•[The Flu: What Parents Need to Know - HealthyChildren.org](#)

•Rona Yu, Allison Malloy, Jill Emerick, Cade M. Nylund, Apryl Susi; The Association Between Obesity and Severe Influenza Outcomes in Pediatric Populations. *Pediatrics* February 2022; 149 (1 Meeting Abstracts February 2022):984.

•[Frontiers | Obesity Increases the Severity and Mortality of Influenza and COVID-19: A Systematic Review and Meta-Analysis \(frontiersin.org\)](#)

•Green WD, Beck MA. Obesity Impairs the Adaptive Immune Response to Influenza Virus. *Ann Am Thorac Soc*. 2017 Nov;14(Supplement\_5):S406-S409. doi: 10.1513/AnnalsATS.201706-447AW. PMID: 29161078; PMCID: PMC5711276.

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•Tuckerman J, Misan S, Crawford NW, Marshall HS. Influenza in Children With Special Risk Medical Conditions: A Systematic Review and Meta-analysis. *Pediatr Infect Dis J*. 2019 Sep;38(9):912-919. doi: 10.1097/INF.0000000000002405. PMID: 31274833.

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9/3/20XX

# References/Resources

- [Weekly US Map: Influenza Summary Update | CDC](#)
- Grohskopf LA, Blanton LH, Ferdinands JM, et al. Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2022–23 Influenza Season. MMWR Recomm Rep 2022;71(No. RR-1):1–28. DOI: <http://dx.doi.org/10.15585/mmwr.rr7101a1>
- [2021–2022 Estimated Flu Illnesses, Medical Visits, Hospitalizations, and Deaths Prevented by Flu Vaccination | CDC](#)
- [Vaccine Effectiveness: How Well Do Flu Vaccines Work? | CDC](#)
- [Pediatric Flu Deaths Top 100 this Season; Most Unvaccinated | CDC](#)
- [Flu | Immunize Nevada](#)
- [Preparing for the 2022-23 Influenza Season \(aap.org\)](#)
- [2021-2022 Influenza Campaign \(nhmamd.org\)](#)
- [Influenza \("Flu"\) Flu Season Information \(washoecounty.gov\)](#)

