POLICY STATEMENT Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

American Academy of Pediatrics

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Recommendations for Prevention and Control of Influenza in Children, 2024–2025: Policy Statement

Committee on Infectious Diseases

This statement updates the recommendations of the American Academy of Pediatrics for the routine use of influenza vaccines and antiviral medications in the prevention and treatment of influenza in children during the 2024–2025 influenza season. A detailed review of the evidence supporting these recommendations is published in the accompanying technical report (www.pediatrics.org/cgi/doi/10.1542/peds.2024-068508). The American Academy of Pediatrics recommends annual influenza vaccination of all children without medical contraindications starting at 6 months of age. Children are at risk for hospitalization and death from influenza. Influenza vaccination is an important strategy for protecting children and the broader community as well as reducing the overall burden of respiratory illnesses when other viruses are cocirculating. Any licensed influenza vaccine appropriate for age and health status can be administered, ideally as soon as possible in the season, without preference for one product or formulation over another. All licensed influenza vaccines for use in the United States are trivalent for the 2024–2025 influenza season.

Antiviral treatment of influenza is recommended for children with suspected (eg, influenza-like illness [fever with either cough or sore throat]) or confirmed influenza who are hospitalized or have severe or progressive disease or have underlying conditions that increase their risk of complications of influenza, regardless of duration of illness. Antiviral treatment should be initiated as soon as possible. Antiviral treatment may be considered in the outpatient setting for symptomatic children who are not at high risk for influenza complications with suspected or confirmed influenza disease, if treatment can be initiated within 48 hours of illness onset. Antiviral treatment may also be considered for children with suspected or confirmed influenza disease whose siblings or household contacts either are younger than 6 months or have a high-risk condition that

abstract

DOI: https://doi.org/10.1542/peds.2024-068507

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FUNDING: No external funding.

FINANCIAL/CONFLICT OF INTEREST DISCLOSURE: Dr Bryant receives honoraria from WebMed and receives a stipend from the American Society of Nephrology.

COMPANION PAPER: A companion to this article can be found online at www.pediatrics.org/cgi/doi/10.1542/peds.2024-068508.

To cite: American Academy of Pediatrics, Committee on Infectious Diseases. Recommendations for Prevention and Control of Influenza in Children, 2024–2025: Policy Statement. *Pediatrics*. 2024;154(4):e2024068507

predisposes them to complications of influenza. Antiviral chemoprophylaxis is recommended for the prevention of influenza virus infection as an adjunct to vaccination in certain individuals, especially exposed children who are asymptomatic and are at high risk for influenza complications but have not yet been immunized or those who are not expected to mount an effective immune response.

INTRODUCTION

Children consistently have the highest attack rates of influenza in the community during seasonal influenza epidemics. Children, especially those younger than 5 years and those with certain underlying medical conditions, can experience substantial morbidity, including severe or fatal complications, from influenza virus infection.[1,2] A higher risk of influenza hospitalization before 5 years of age has been noted in children born preterm (<37 weeks' gestation) or near-term (37–38 weeks' gestation).[3] School-aged children bear a large influenza disease burden and are more likely to receive influenza-related medical care compared with healthy adults.[4] Children also play a pivotal role in the transmission of influenza virus infection to household and other close contacts.[1,5,6] Influenza vaccination of children not only reduces disease burden among children but also among household members, close contacts, and community members of all ages.[7,8] By reducing the burden of respiratory illnesses, influenza vaccination helps to preserve health care capacity, especially when other viruses are cocirculating. **The American Academy of Pediatrics (AAP) recommends routine influenza vaccination and use of antiviral agents for the prevention and treatment of influenza in children, respectively.** Unfortunately, influenza vaccination coverage decreased again during the 2023–2024 influenza season. Through May 11, 2024, only 53.9% of children 6 months to 17 years of age had been vaccinated, more than 8.5 percentage points lower than in May of 2020.[9] Non-Hispanic Black children had the lowest influenza vaccine coverage (49.1%) compared with several groups with higher coverage, including non-Hispanic white children (51.1%), Hispanic children (59.6%), and children identified as other race or ethnicity (58.8%). Coverage levels were also lower among children residing in rural areas (39.9%) compared with suburban (53.7%) or urban (59.5%) areas.[9]

Efforts to increase influenza vaccination, including strategies to decrease disparities in vaccine access and delivery and to counter vaccine hesitancy, are urgently needed.

This policy statement summarizes updates and recommendations for the 2024–2025 influenza season. An accompanying technical report provides further detail regarding recent influenza seasons, influenza vaccine effectiveness, detailed discussion of inactivated (nonlive) and live attenuated influenza vaccines, vaccine storage, vaccination coverage, timing of vaccination, duration of protection, and vaccine delivery strategies.[10]

UPDATES FOR THE 2024–2025 INFLUENZA SEASON

1. All licensed vaccines available in the United States this season are trivalent.
2. The compositions of influenza vaccines for the 2024–2025 season have been updated (Table 1).
   a. The recommended influenza A (H1N1) pdm09 and influenza B Victoria lineage components of the vaccine are unchanged for this season.[11,12]
   b. The influenza A (H3N2) component is new this season.
   c. Influenza B Yamagata lineage virus has not circulated since 2020, and this component has been removed from seasonal influenza vaccines in the United States.
3. Coadministration with other recommended immunizations, including nirsevimab, is emphasized.
4. Recommendations for influenza treatment and prophylaxis have been simplified.
5. Recommendations for immunization of immunocompromised hosts have been updated.
6. Recommendations for improving access to influenza vaccine are emphasized.

HIGH-RISK GROUPS IN PEDIATRICS

Children younger than 5 years, especially those younger than 2 years, and children with certain underlying medical conditions are at increased risk of hospitalization and complications attributable to influenza (Table 2).[10] Although influenza vaccination is recommended for everyone starting at 6 months of age, emphasis should be placed on ensuring that children at high risk, medically vulnerable children, and children

TABLE 1 Trivalent Influenza Vaccine Composition for the 2024–2025 Season

	Specific Strain
Influenza A	
H1N1	A/Victoria/4897/2022 (H1N1)pdm09-like virus (egg-based)[a]
	A/Wisconsin/67/2022 (H1N1)pdm09-like virus (cell culture-based or recombinant)[b]
H3N2	A/Thailand/8/2022 (H3N2)-like virus (egg-based)[b] A/Massachusetts/18/2022 (H3N2)-like virus (cell culture-based or recombinant)[b]
Influenza B	
Victoria	B/Austria/1359417/2021-like virus (B/Victoria lineage)[a]

Quadrivalent vaccines are still available outside the United States.
[a] Unchanged this season.
[b] New this season.

TABLE 2 High-Risk Groups for Influenza Complications	
Category	**Description**
Demographic characteristics	Children <5 y, especially those <2 y[a] Children born preterm or near-term[b]
	Residents of a chronic care facility or nursing home
Underlying condition or treatment with common examples[c]	
Chronic pulmonary disease	Asthma[19]
	Cystic fibrosis
	Bronchopulmonary dysplasia[19]
	Compromised respiratory function (eg, requiring mechanical ventilation, tracheostomy)
Cardiovascular disease	Hemodynamically significant conditions (excluding hypertension alone)
Kidney disease	Chronic kidney disease, including end-stage kidney disease
	Dialysis
Hepatic disease	Chronic liver disease
	Cirrhosis[20,21]
Hematologic disease	Sickle cell disease
	Other hemoglobinopathies
Metabolic disorders	Diabetes mellitus
Neurologic and neurodevelopmental conditions	Cerebral palsy
	Epilepsy
	Stroke
	Intellectual developmental disorder
	Moderate to severe developmental delay
	Neuromuscular disorders, including muscular dystrophy
	Spinal cord injury
Extreme obesity	BMI ≥40 for adults; BMI ≥ the 95th percentile in children[d]
Immunosuppression	Receipt of immunocompromising medications
	Receipt of bone marrow, hematopoietic cell transplant, and solid organ transplant
	Congenital or acquired immune deficiency, including HIV
	Asplenia
Receiving treatment with aspirin or salicylate-containing therapies[e]	
Pregnancy and up to 2 weeks postpartum	

Source: Adapted from Grohskopf LA, et al, Prevention and control of seasonal influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices—United States, 2024–2025 influenza season. *MMWR Recomm Rep.* 2024; in press.[1]

[a] Regardless of the presence of underlying medical conditions.

[b] Higher risk of influenza hospitalization in the first 5 years of life.

[c] List of examples is not exhaustive.

[d] BMI associated with increased risk not well-defined in children but could consider BMI at or above the 95th percentile for children and teens of the same age and sex.[22,23]

[e] Applies to children and adolescents <19 years who may be at increased risk of Reye syndrome.

with medical complexity, as well as their parents and guardians, other household contacts, and caregivers receive annual influenza vaccine (Table 3). Additionally, increased efforts are needed to eliminate barriers to vaccination in all persons experiencing higher rates of adverse outcomes from influenza. Racial and ethnic disparities exist, resulting in severe outcomes from influenza. In one cross-sectional study spanning 10 influenza seasons, Black, Hispanic, and American Indian/Alaska Native people had higher rates of influenza-associated hospitalizations and ICU admissions, and disparities were highest in children ≤4 years of age.[13] Influenza-associated in-hospital deaths were threefold to fourfold higher in Black, Hispanic, and Asian/Pacific Islander children compared with white children.[13] Inequities in health care system access and other social drivers of health contribute to severe outcomes and increased mortality in these groups.

SEASONAL INFLUENZA VACCINES

The seasonal influenza vaccines licensed for children for the 2024–2025 season are shown in Table 4. More than one product may be appropriate for a given patient, and there is no preference for one product over another. Thus, influenza vaccination should not be delayed to obtain a specific product.

All 2024–2025 seasonal influenza vaccines available in the United States are trivalent and contain hemagglutinin derived from the same influenza strains as recommended by the World Health Organization and the US Food and Drug Administration (FDA)'s Vaccines and Related Biological

TABLE 3 Strategies for Increasing Childhood Influenza Vaccination	
	Strategy
Clinician/care team	Offer strong, presumptive influenza vaccine recommendation
	Bundle recommendation for influenza vaccine with recommendations for other needed vaccines
	Use consistent messaging across care team members
	Identify influenza vaccine champion(s)
Practice/health systems	Review influenza vaccination status at all visits
	Bundle influenza vaccine with other needed vaccines
	Vaccinate at all visit types (eg, well child, acute care visits)
	Vaccinate in all health care settings (eg, hospital, emergency department, subspecialty practice)
	Increase access to influenza vaccine (eg, expanded hours, vaccine-only clinic)
	Provide evidence-based information to patients and families (eg, office-based educational handout)
	Offer scripting for staff and messaging for patients and families to address common questions, including frequent misconceptions and relevant contraindications and precautions, including allergies
	Consider an early or expedited allergy referral for patients with a potential flu vaccine allergy to ensure timely vaccination when appropriate
	Send influenza vaccine reminder or recall messages
	Use electronic health record-based tools to identify and classify high-risk patients for targeted outreach
	Use standing orders for influenza vaccine
	Implement influenza vaccine prompts or clinical decision support
	Perform audits and share feedback reports
	Integrate electronic health record with regional or state immunization information system and automate reconciliation of electronically received influenza vaccine administration data
Community/ public health	Partner with stakeholders to support vaccine initiatives within the community, including school-based programs and pharmacies
	Engage with communities affected by health disparities to develop tailored strategies that promote trust, encourage dialog, and increase access to preventive services

Products Advisory Committee for the Northern Hemisphere (Table 1).[11,12] The influenza A (H3N2) vaccine component for the 2024–2025 season is different from the previous year, whereas the influenza A (H1N1) and influenza B Victoria lineage are unchanged. Influenza B Yamagata lineage components have been removed from vaccines available in the United States. Different but antigenically related influenza A strains are included in this season's egg-based and cell-based or recombinant vaccines. They are matched to the strains expected to circulate in the 2024–2025 season.

INFLUENZA VACCINE RECOMMENDATIONS

General Recommendations

1. The AAP recommends influenza vaccination of everyone 6 months and older, including children and adolescents, during the 2024–2025 influenza season.
2. The AAP recommends any licensed influenza vaccine product appropriate for age and health status and does not prefer one product over another, including inactivated (nonlive) influenza vaccine (IIV) and live attenuated influenza vaccine (LAIV). Recombinant influenza vaccine (RIV) is another option for persons ≥18 years of age. Physicians and other clinicians who care for children may administer whichever product is appropriate and readily available to capture all opportunities for influenza vaccination and achieve the highest possible coverage this season.
3. LAIV should not be used for immunocompromised persons and persons with some chronic medical conditions (Table 5).
4. The number of influenza vaccine doses recommended for children remains unchanged in the 2024–2025 influenza season and depends on the child's age at first dose administration and influenza vaccination history (Fig 1). Children 6 months through 8 years of age who are receiving influenza vaccine for the first time or who received only 1 dose before July 1, 2024, or whose vaccination status is unknown should receive 2 doses of influenza vaccine at least 4 weeks apart. Doses given up to 4 days before the minimum suggested interval should be regarded as acceptable. All other children should receive 1 dose this season. For children 8 years of age who require 2 doses of influenza vaccine, both doses should be administered even if the child turns 9 years of age between dose 1 and dose 2.
5. The total number of full doses appropriate for age should be administered. If a child is inadvertently vaccinated with a formulation only approved for older children or adults, the dose should be counted as valid. If a lower dose than recommended is inadvertently administered to a child 36 months or older (eg, 0.25 mL), an additional 0.25-mL dose should be administered to provide a full dose of 0.5 mL as soon as possible. A 0.5-mL dose of any IIV should not be split into 2 separate 0.25-mL doses.
6. When a child is recommended to receive 2 doses of vaccine in a given season, the doses do not need to be the same brand. A child may receive a combination of IIV and LAIV if appropriate for age and health status.
7. Influenza vaccine should be offered to children as soon as it becomes available, especially to those recommended to receive 2 doses. The recommended dose(s) ideally should be received by the end of October for optimal protection before the influenza

TABLE 4 Recommended Seasonal Influenza Vaccines for Children and Adolescents: United States, 2024–2025 Influenza Season

Vaccine	Trade Name (Manufacturer)	Age Group	Presentation and Hemagglutinin Antigen Content (IIVs and RIV3) or Virus Count (LAIV3) per Dose for Each Antigen	Recommended Dose	Thimerosal Mercury Content[a] (μg Hg/0.5 mL dose)
Trivalent Standard Dose – Egg-based Vaccines					
IIV3	Afluria (Seqirus)	≥6–35 mo[b]	5 mL-multidose vial[c] (15 μg/0.5 mL)	0.25 mL	
		≥36 mo	5-mL multidose vial[c] (15 μg/0.5 mL)	0.5 mL	24.5
		≥36 mo	0.5-mL prefilled syringe (15 μg/0.5 mL)	0.5 mL	0
IIV3	Fluarix (GlaxoSmithKline)	≥6 mo	0.5-mL prefilled syringe (15 μg/0.5 mL)	0.5 mL	0
IIV3	FluLaval (GlaxoSmithKline)	≥6 mo	0.5-mL prefilled syringe (15 μg/0.5 mL)	0.5 mL	0
IIV3	Fluzone (Sanofi Pasteur)	≥6 mo	0.5-mL prefilled syringe (15 μg/0.5 mL)	0.5 mL	0
		6–35 mo	5-mL multidose vial[c,d] (15 μg/0.5 mL	0.25 or 0.5 mL	25
		≥36 mo	5-mL multidose vial[c] (15 μg/0.5 mL)	0.5 mL	25
Trivalent standard dose – cell culture-based vaccines					
ccIIV3	Flucelvax (Seqirus)	≥6 mo	0.5-mL prefilled syringe (15 μg/0.5 mL)	0.5 mL	0
		≥6 m	5-mL multidose vial[c] (15 μg/0.5 mL)	0.5 mL	25
Recombinant vaccine					
RIV3	Flublok (Sanofi Pasteur)	≥18 y	0.5-mL prefilled syringe (45 μg/0.5 mL)	0.5 mL	0
Live attenuated vaccine-egg based vaccine					
LAIV3	FluMist (AstraZeneca)	2 – 49 y	0.2-mL prefilled intranasal sprayer (Virus dose: $10^{6.5-7.5}$ FFU/0.2 mL)	0.2 mL	0

Data sources: Grohskopf LA, et al, Prevention and control of seasonal influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices—United States, 2024–2025 influenza season. *MMWR Recomm Rep.* 2024; in press. Implementation guidance on supply, pricing, payment, billing, coding, and liability issues can be found at aap.org/influenza. aIIV3, trivalent adjuvanted inactivated (nonlive) influenza vaccine; ccIIV3, trivalent cell culture-based inactivated (nonlive) influenza vaccine; FFU, fluorescent focus unit; LAIV3, trivalent live attenuated influenza vaccine; RIV3, trivalent recombinant influenza vaccine.

[a] See section on Thimerosal-containing vaccines in the technical report.[5]

[b] The dose is 0.25 mL for children 6 through 35 mo of age and 0.5 mL for children 3 years and older.

[c] For vaccines that include a multidose vial presentation, the maximum number of doses withdrawn should not exceed the number specified in the package insert (eg, 10 doses for Fluzone, 20 doses for Afluria). Residual product should be discarded.

[d] A total of 0.25 mL drawn from a multidose vial is an acceptable dose for children 6 to 35 months of age.

season begins. Most adults, particularly those ≥65 years of age and pregnant persons in the first or second trimester, should not be immunized in July and August because of a concern about waning immunity. Influenza vaccination efforts should continue throughout the season.

8. IIV (or RIV, if age-appropriate) may be administered simultaneously with or at any time before or after other inactivated (nonlive) or live vaccines or nirsevimab. LAIV may be administered simultaneously with other live or inactivated (nonlive) vaccines, including coronavirus disease 2019 (COVID-19) vaccines. If not administered simultaneously, ≥4 weeks should pass between the administration of LAIV and other nonoral live vaccines. A 4-day grace period is permitted (ie, vaccine doses administered ≤4 days before the minimum interval or age are considered valid).

Immunocompromised Children

9. For children with malignant neoplasms receiving chemotherapy, the optimal time to provide IIV is not well defined, but generally, vaccine should be administered ≥2 weeks before cytotoxic chemotherapy, when clinically possible.
10. For children who have received anti-B cell therapies (eg, rituximab, alemtuzumab), IIV should be deferred for 6 months after last dose, ideally once there is evidence of B cell recovery.
11. Household contacts of immunocompromised individuals should receive influenza vaccine annually.
12. Nonlive vaccines should be considered ≥6 months after CD19-targeted chimeric antigen receptor-T–cell infusion in patients who are in remission and do not require additional chemotherapy or hematopoietic cell transplantation. For children who will be starting anti-B cell therapies, IIV should optimally be provided at least 2 to 4 weeks before starting these therapies.
13. For hematopoietic cell transplant recipients, IIV can be given starting 4 to 6 months after transplantation. For solid organ transplant (SOT) recipients, IIV can be given starting 3 months after receipt of an SOT, although it may be considered ≥1 month after SOT during the influenza season.
14. Although high-dose IIV is not approved for use in children, clinicians could consider administering 2 doses of high-dose trivalent inactivated (nonlive)

TABLE 5 Influenza Vaccine Contraindications and Precautions

Vaccine	Contraindication	Precaution	Clinician Discretion	Not Contraindication or Precaution
Inactivated (nonlive) influenza vaccine (IIV)[a]	Anaphylaxis or severe allergic reaction to previous influenza vaccination	Moderate to severe illness, including COVID-19 History of GBS within 6 weeks of prior influenza vaccination	—	Mild illness, with or without fever Egg allergy
LAIV	Anaphylaxis or severe allergic reaction to previous influenza vaccination Allergy to gelatin Age 2 — 4 y with diagnosis of asthma or history of wheezing in last 12 months Cochlear implants Active cerebrospinal fluid leaks Immunosuppression because of any cause, including: Primary or acquired immunodeficiency, including HIV Immunosuppressive or immunomodulatory therapy Anatomic or functional asplenia Close contacts or caregivers of severely immunocompromised individuals Taking aspirin or salicylate-containing medications Receiving or recently received influenza antiviral medication[b] Currently pregnant[c]	Moderate to severe illness, including COVID-19 History of GBS within 6 weeks of prior influenza vaccination Diagnosis of asthma and age ≥5 y Certain underlying chronic conditions that might predispose to complications after influenza (eg, chronic pulmonary disease, cardiovascular disease, renal, hepatic, neurologic, hematologic, or metabolic disorders)	Defer to resolution of symptoms or use IIV if a patient has nasal congestion that could impede vaccine delivery	Mild illness, with or without fever Egg allergy
RIV3	Anaphylaxis or severe allergic reaction to previous dose of RIV3 or any component of RIV3	Moderate to severe illness, including COVID-19 History of GBS within 6 weeks of prior influenza vaccination		Mild illness, with or without fever Egg allergy

GBS, Guillain-Barré syndrome; RIV3, trivalent recombinant influenza vaccine.

[a] IIVs for children include Afluria, Fluarix, FluLaval, and Fluzone and Flucelvax.

[b] Within 48 hours (oseltamivir, zanamivir), 5 days (peramivir), or 17 days (baloxavir) of stopping influenza antiviral therapy.

[c] Pregnancy is not a labeled contraindication for LAIV. The prescribing information for FluMist Quadrivalent, 2023–2024 formula indicated that FluMist is not absorbed systemically after intranasal administration and use during pregnancy is not expected to result in fetal exposure to the drug.

influenza vaccine (IIV3) 28 to 42 days apart in pediatric hematopoietic cell transplant recipients 3 to 17 years of age.[14,15]

Pregnant and Breastfeeding Persons

15. Pediatricians who interact with pregnant individuals should recommend influenza vaccination, emphasizing the benefits of vaccination for them and their infants.
16. Pregnant individuals may receive IIV (or RIV if age-appropriate) at any time during pregnancy to protect themselves and their infants. Those who do not receive it during pregnancy should receive influenza vaccine before hospital discharge. Those who decline the vaccine during hospitalization should be encouraged to discuss influenza vaccination with their obstetrician, family physician, nurse midwife, or other trusted clinician.
17. Influenza vaccination is safe for the breastfeeding parent and infant.

Travelers

18. Individuals traveling to the tropics, on cruise ships, or to the Southern hemisphere during April to September should consider seasonal influenza vaccination ≥2 weeks before departure if not vaccinated during the preceding fall or winter and if vaccine is available. The dating period, or expiration date, of seasonal influenza vaccines is based on stability studies conducted by each manufacturer, and no final vaccine formulations in the United States are labeled

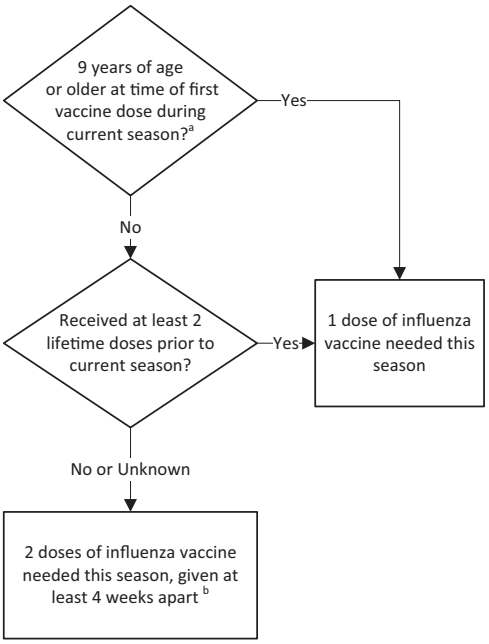

FIGURE 1

Number of 2024–2025 seasonal influenza vaccine doses recommended for children based on age and prior vaccination history. [a] Must be at least 6 months of age to be eligible for influenza vaccine. [b] Second dose still required for children who turn 9 between first and second dose.

with an expiration date that extends past June 30 of the prior winter influenza season.[16]

Health Care Personnel

19. The AAP supports mandatory influenza vaccination of health care personnel as a crucial strategy for reducing health care-associated influenza virus infections.

Influenza Vaccine Implementation

20. Efforts should be made to promote influenza vaccination of all children, especially children younger than 5 years and those in high-risk groups (Table 2) and their contacts, unless contraindicated (Table 5). To promote influenza vaccination in communities affected by health disparities, it is important to include community members in the development of culturally relevant strategies. Evidence-based strategies for increasing influenza vaccine uptake are presented in Table 3. Strategies for communicating with families about vaccines and promoting vaccine confidence are available at https://www.aap.org/vaccinecommunication.
21. Increasing access and reducing barriers to vaccination in schools, pharmacies, hospitals, and other nontraditional settings could improve vaccination rates, although vaccination in the medical home is optimal for young children to facilitate other necessary services, including well care, preventive screening, anticipatory guidance, and other important childhood vaccinations.
22. When influenza vaccination takes place in a nontraditional setting, appropriate documentation should be provided to patients and to the medical home. Settings that offer influenza vaccination should submit details about the vaccination to the state or regional immunization information systems, including all content needed to support communication of this information to the patient's medical home.
23. Practices serving children and adolescents may consider offering influenza vaccine to family members and close contacts.[17]

Influenza Vaccine Advocacy

24. All participants in immunization efforts should work to eliminate disparities in influenza vaccine supply between privately insured patients and those eligible for vaccination through the Vaccines for Children program.
25. Information about influenza vaccine and influenza vaccine clinics should be provided to eligible children and their families in their preferred language, especially those who may experience barriers to preventive care.
26. Public and private payers should offer adequate payment for influenza vaccine supply and administration to pediatric populations, update payments for influenza vaccine so that physicians and other clinicians who care for children are paid for administering doses in July and August, and eliminate remaining "patient responsibility" cost barriers to influenza vaccination where they still exist.

INFLUENZA VACCINE CONTRAINDICATIONS AND PRECAUTIONS

Contraindications and precautions for the use of influenza vaccines are described in Table 5, and further details are provided in the technical report.[10] Key points include:

1. Product-specific contraindications must be considered when selecting the type of influenza vaccine to administer.[18]
2. Although a history of severe allergic reaction (eg, anaphylaxis) to any influenza vaccine is generally a contraindication to future receipt of influenza vaccines, children who have had a severe allergic reaction after influenza vaccination should be evaluated by an allergist to help identify the vaccine component responsible for the reaction and to determine whether future vaccine receipt is appropriate. Children who are allergic to gelatin (very rare) should receive IIV (or RIV if age-appropriate) instead of LAIV.
3. Children with egg allergy can receive any influenza vaccine without any additional precautions beyond those recommended for all vaccines.

4. Children with acute moderate or severe illness may receive influenza vaccine as soon as their acute illness has improved; strategies to promote timely receipt once recovered from illness should be employed (ie, schedule return visit; send reminder message; if hospitalized, administer before discharge from hospital setting); children with mild illness, including a low-grade fever, should still be vaccinated.

INFLUENZA TESTING

1. Influenza testing should be performed in children with signs and symptoms of influenza when test results are anticipated to impact clinical management (eg, to inform the decision to initiate antiviral or avoid antibiotic therapy, pursue other diagnostic testing, initiate infection prevention and control measures, or distinguish from other respiratory viruses with similar symptoms [eg, severe acute respiratory syndrome coronavirus 2]).
2. When influenza is circulating in the community, hospitalized patients with signs and symptoms of influenza should be tested with a molecular assay with high sensitivity and specificity (eg, reverse transcriptase-polymerase chain reaction).
3. At-home tests are available for children as young as 2 years of age, but data on the use of these tests in pediatric patients is limited. The use of at-home test results to inform treatment decisions should be informed by the sensitivity and specificity of the test, the prevalence of influenza in the community, the presence and duration of compatible signs and symptoms, and individual risk factors and comorbidities.

INFLUENZA TREATMENT RECOMMENDATIONS

Antiviral medications available for the treatment and prophylaxis of influenza in children are described in Table 6. Key points include:

1. Antiviral medications are an important adjunct in the control of influenza but are not a substitute for influenza vaccination. Physicians and other clinicians who care for children should promptly identify patients suspected of having influenza for timely initiation of antiviral treatment when indicated and based on shared decision-making between the clinician and child's parent or guardian to reduce morbidity and mortality. Potential benefits and harms of antiviral treatment are summarized in the technical report ([www.pediatrics.org/cgi/doi/10.1542/peds.2024-068508]; see section "Rationale for Influenza Treatment in Children").[10]
2. The AAP considers oseltamivir the preferred antiviral medication for patients with influenza A and B because of the cumulative experience of this drug in children, relative cost, and ease of administration.
3. Although best results are observed when the child is treated within 48 hours of symptom onset, antiviral therapy should still be considered beyond 48 hours in certain cases (see below).
4. Antiviral treatment should be offered as early as possible to the following individuals, regardless of influenza vaccination status and duration of symptoms*:
   - Any child hospitalized with suspected or confirmed influenza disease.
   - Any child with severe, complicated, or progressive influenza disease, regardless of health care setting (ie, inpatient or outpatient).
   - Any child with suspected or confirmed influenza disease of any severity if they are younger than 5 years or they belong to other high-risk groups for influenza complications, regardless of health care setting (ie, inpatient or outpatient) (Table 2).
5. Facilitate quick access to antiviral treatment near the onset of symptoms.
6. Treatment may be considered for the following individuals in the outpatient setting after discussing benefits and risks with parents or guardians:
   - Any child with suspected or confirmed influenza disease who is not at high risk for influenza complications if treatment can be initiated within 48 hours of illness onset.
   - Any child with suspected or confirmed influenza disease whose siblings or household contacts are either younger than 6 months or at high risk for influenza complications (Table 2).
7. Initiation of antiviral therapy should be based on signs and symptoms consistent with influenza infection and epidemiologic factors (eg, influenza circulating in the community, known exposure, etc). Provision of antiviral therapy does not require a positive test for influenza.

INFLUENZA CHEMOPROPHYLAXIS RECOMMENDATIONS

1. Chemoprophylaxis is not a substitute for vaccination, and among some high-risk people, both vaccination with IIV or RIV and antiviral chemoprophylaxis may be considered.
2. The AAP considers oseltamivir to be the preferred postexposure chemoprophylaxis for patients with influenza A and/or B.
3. Postexposure chemoprophylaxis should only be used when antiviral agents can be initiated within 48 hours of exposure.

* Recommendations for the use of oseltamivir differ from FDA-approved labeling.

TABLE 6 Recommended Dosage and Schedule of Influenza Antiviral Medications for Treatment and Chemoprophylaxis in Children for the 2024–2025 Influenza Season: United States

Medication	Treatment		Chemoprophylaxis		Common Adverse Events[a]
	Dosage	Duration	Dosage	Duration After Last Exposure	
Oseltamivir[b,c]					
Adults	75 mg, twice daily	5 days	75 mg, once daily	7 days	—
Children ≥12 mo					
≤15 kg	30 mg, twice daily	5 days	30 mg, once daily	7 days	Nausea
>15 kg–23 kg	45 mg, twice daily	5 days	45 mg, once daily	7 days	Vomiting
>23 kg–40 kg	60 mg, twice daily	5 days	60 mg, once daily	7 days	Headache
>40 kg	75 mg, twice daily	5 days	75 mg, once daily	7 days	Skin reactions
Infants 9 – 11 mo[d]	3.5 mg/kg per dose, twice daily	5 days	3.5 mg/kg per dose, once daily	7 days	Diarrhea (children <1 y of age)
Term infants 0 – 8 mo[d]	3 mg/kg per dose, twice daily	5 days	3 – 8 mo: 3 mg/kg per dose, once daily	7 days	—
Preterm infants[e]					
<38 weeks' PMA	1 mg/kg per dose, twice daily	5 days	See footnote e in box below	—	—
38 – 40 weeks' PMA	1.5 mg/kg per dose, twice daily	5 days	—	—	—
>40 weeks' PMA	3 mg/kg per dose, twice daily	5 days	—	—	—
Zanamivir[c,f]					
Adults	10 mg (two 5-mg inhalations), twice daily	5 days	10 mg (two 5-mg inhalations), once daily	7 days[c]	Bronchospasm
Children	≥7 y: 10 mg (two 5-mg inhalations), twice daily	5 days	≥5 y: 10 mg (two 5-mg inhalations), once daily	7 days[b]	Skin reactions
Peramivir[g]					
Adults	One 600 mg dose via intravenous infusion, given over 15 – 30 min	NA	Not recommended	—	—
Children					
6 mo–12 y	One 12 mg/kg dose (600 mg maximum) via intravenous infusion over 15 – 30 min	NA	Not recommended	—	Diarrhea Skin reactions
13 – 17 y	One 600 g dose, via intravenous infusion over 15 – 30 min	NA	Not recommended	—	—
Baloxavir[h]					
Individuals ≥5 y					
<20 kg	2 mg/kg as single dose, orally	NA	2 mg/kg as single dose, orally	NA	Nausea
20 kg–<80 kg	One 40-mg dose, orally	NA	One 40-mg dose, orally	NA	Vomiting
≥80 kg	One 80-mg dose, orally	NA	One 80-mg dose, orally	NA	Diarrhea

[a] Although only common adverse events are listed in this table, hypersensitivity reactions, including anaphylaxis, have been reported postmarketing with oseltamivir and baloxavir. Hypersensitivity reactions have also been reported with peramivir and zanamivir.

[b] Oseltamivir is administered orally or by feeding tube without regard to meals, although administration with meals may improve gastrointestinal tolerability. Oseltamivir is available as a generic drug or as Tamiflu in 30-mg, 45-mg, and 75-mg capsules and as a powder for oral suspension that is reconstituted to provide a final concentration of 6 mg/mL. For the 6-mg/mL suspension, a 30-mg dose is given with 5 mL of oral suspension, a 45-mg dose is given with 7.5 mL oral suspension, a 60-mg dose is given with 10 mL oral suspension, and a 75-mg dose is given with 12.5 mL oral suspension. If the commercially manufactured oral suspension is not available, a suspension can be compounded by retail pharmacies (final concentration also 6 mg/mL), based on instructions contained in the package label. For infants younger than 1 year, an appropriate measuring device such as a 3-mL or 5-mL oral syringe should be used to measure the dose instead of the syringe supplied. In patients with renal insufficiency, the dose should be adjusted on the basis of creatinine clearance. Renal dosing of oseltamivir is not available in the package insert for pediatric patients. Dosing tables published by the CDC may be useful for children who qualify for adult doses based on weight >40 kg (https://www.cdc.gov/flu/pdf/professionals/antivirals/Antiviral-Medications-Table3.pdf). See https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm and Infectious Diseases Society of America Guidelines.[24] These recommendations differ from the package insert for oseltamivir: https://www.accessdata.fda.gov/drugsatfda_docs/label/2012/021087s062lbl.pdf.

[c] The CDC recommends routine chemoprophylaxis with oseltamivir or zanamivir for 7 days after last known exposure; minimum of 14 days and continuing for 7 days after last known exposure if part of institutional outbreak (https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm). This differs from the package insert for zanamivir, which recommends prophylaxis for 10 days in community settings and 28 days in community outbreaks (https://www.accessdata.fda.gov/drugsatfda_docs/label/2010/021036s025lbl.pdf).

[d] Approved by the FDA for treatment of children as young as 2 weeks of age. Given preliminary pharmacokinetic data and limited safety data, oseltamivir can be used to treat influenza in both term and preterm infants from birth because benefits of therapy are likely to outweigh possible risks of treatment. Oseltamivir is not FDA-approved for postexposure prophylaxis (PEP) in children younger than 1 year. Oseltamivir is not recommended by the AAP or CDC for chemoprophylaxis of infants <3 months because of limited safety and efficacy data in this age group. Of note, the CDC recommends a dose of 3.0 mg/kg, twice daily, for all infants <12 months; the Infectious Diseases Society of America guidelines[24] include both AAP and CDC recommendations.

(continued)

[e] Oseltamivir dosing for preterm infants. The weight-based dosing recommendation for preterm infants is lower than for term infants.[25–27] Preterm infants may have lower clearance of oseltamivir because of immature renal function, and doses recommended for full-term infants may lead to very high drug concentrations in this age group. Limited data from the National Institute of Allergy and Infectious Diseases Collaborative Antiviral Study Group provide the basis for dosing preterm infants using their postmenstrual age (PMA) (gestational age + chronologic age). For extremely preterm infants (<28 weeks), please consult a pediatric infectious disease physician. PEP is not generally recommended for preterm infants because of limited data on use in these infants unless PEP is determined to be essential for outbreak control based on clinician judgment. Optimal dosing has not been defined in this circumstance.

[f] Zanamivir is administered by inhalation using a proprietary "Diskhaler" device distributed together with the medication. Zanamivir is a dry powder, not an aerosol, and should not be administered using nebulizers, ventilators, or other devices typically used for administering medications in aerosolized solutions. Zanamivir is not recommended for people with chronic respiratory diseases, such as asthma or chronic obstructive pulmonary disease, which increase the risk of bronchospasm.

[g] Peramivir requires dose adjustment in patients with renal insufficiency. For treatment of pediatric patients 2 years to 12 years of age: 2 mg/kg if creatinine clearance 10 to 29 mL per min; 4 mg/kg if creatinine clearance is 30 to 49 mL per min. For treatment of adolescents 13 and older, 100 mg if creatinine clearance 10 to 29 mL per min; 200 mg if creatinine clearance is 30 to 49 mL per min (https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/206426s004lbl.pdf).

[h] Oral baloxavir marboxil is approved by the FDA for treatment of acute uncomplicated influenza within 2 days of illness onset. It is administered orally or by feeding tube. It should not be administered with dairy products, calcium-fortified beverages, polyvalent cation-containing laxatives, antacids, or oral supplements (eg, calcium, iron, magnesium, selenium, or zinc). Baloxavir marboxil is not recommended as monotherapy for treatment of influenza in individuals who are severely immunocompromised. It is not recommended for persons who are pregnant, or breastfeeding. Sources: IDSA[24] and https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm.

4. Postexposure chemoprophylaxis should not be used for routine or widespread prophylaxis outside of institutional outbreaks.
   a. Postexposure chemoprophylaxis is recommended for unvaccinated staff and unvaccinated children in a closed institutional setting with children at high risk for influenza complications (eg, extended-care facilities) to control influenza outbreaks.
5. Postexposure chemoprophylaxis can be considered after known or suspected influenza exposure for children in the following situations:
   - Any child at high risk for influenza complications for whom influenza vaccine is contraindicated or has not yet been administered this season.
   - Any child at high risk for influenza complications who received influenza vaccine in the past 2 weeks (ie, optimal immunity may not yet be achieved).
   - Any child at high risk for influenza complications who has been vaccinated but may not have mounted a sufficient immune response (ie, immunosuppression).
   - Any child at high risk for influenza complications when influenza virus strains circulating in the community are not well matched with those of the seasonal influenza vaccine per the Centers for Disease Control and Prevention (CDC) (https://www.cdc.gov/flu/vaccines-work/effectiveness-studies.htm).
   - Any unvaccinated child with a family members or close contact who is at high risk for influenza complications and is unable to be otherwise effectively protected from influenza.
6. Postexposure chemoprophylaxis can be considered for known or suspected influenza exposed family members or close contacts of children at high risk for influenza complication in the following situations:
   - Unvaccinated family members and close contacts who are likely to have ongoing, close exposure to unvaccinated children at high risk for influenza complications or unvaccinated children who are younger than 24 months.
   - Influenza virus strains circulating in the community are not well matched with those of the seasonal influenza vaccine per the CDC.

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ACKNOWLEDGMENTS

The Committee on Infectious Diseases gratefully acknowledges Kristina A. Bryant, MD, FAAP, and Annika M. Hofstetter, MD, PhD, MPH, FAAP, for their leadership in drafting the policy statement and technical report; Juan D. Chaparro, MD, MS, FAAP, and Jeremy J. Michel, MD, MHS, FAAP, for their significant contributions in providing input on the initial drafts on behalf of the AAP Partnership for Policy Initiative; and Jennifer Shaw for her editing assistance.

ABBREVIATIONS

AAP: American Academy of Pediatrics
FDA: US Food and Drug Administration
IIV: inactivated (nonlive) influenza vaccine
IIV3: trivalent inactivated (nonlive) influenza vaccine
LAIV: live attenuated influenza vaccine
RIV: recombinant influenza vaccine

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