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RISK MANAGEMENT SERVICES





2026

Vaccine Toolkit





IMPORTANT NOTICE: The following guidance is provided for reference purposes only and does not constitute medical advice, clinical endorsement, or official recommendations for any specific vaccine or treatment. Readers of this material must rely on input from their own public health or medical experts regarding specific vaccine decisions.

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RESPIRATORY VIRUS PREVENTION
POLICY & PROCEDURE

Policy

It is the policy of this facility to minimize the risk of acquiring, transmitting, or experiencing complications from respiratory viruses by educating and implementing a comprehensive respiratory virus prevention program that includes education, infection prevention practices, and offering immunizations to residents, staff members and volunteer workers in accordance with current recommendations from the Centers for Disease Control and Prevention (CDC).

General Considerations:

- The immunization program for respiratory viruses will be developed with the medical director based on national standards of practice.
- Each resident or resident representative will receive education regarding the benefits and potential side effects of immunizations.
- Residents will be offered respiratory virus immunizations per local health department recommendations (October 1 through March 31) unless the immunization is medically contraindicated, or the resident has already been immunized during this time period.
- Vaccinations will be offered to residents as recommended for the facility's geographic area.
- Residents and/or resident representatives may refuse immunizations and sign a declination consent.
- The resident's medical record will include documentation that indicates, at a minimum, the following:
    - The resident and/or resident representative was provided education regarding the benefits and potential side effects of respiratory vaccines; and
    - If the resident received the vaccines or declined due to medical contraindications.
- Staff and volunteers will be assessed for medical contraindications of vaccines and receive education regarding the benefits and potential side effects.

Staff are encouraged to receive recommended immunizations in accordance with CDC guidance to prevent infection and transmission of respiratory viruses and possible complications, including death to patients, coworkers, family, and community.

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Procedure

1. Assess the person receiving the immunization for medical contraindications in accordance with current CDC clinical guidance, including but limited to:
   - History of severe or life-threatening reaction following a prior dose of a vaccine or vaccine component,
   - History of Guillain-Barre syndrome (GBS), as applicable to specific vaccines
   - Current moderate or severe acute illness, including temperature of 100.4 or greater.
2. Vaccinations may be administered in accordance with physician-approved "standing orders" for those with no known medical contraindications.
3. Prior to the administration of any vaccine, the person receiving the immunization, or his/her legal representative, will be provided with a copy of thecurrent Vaccine Information Statement (VIS) as provided by the CDC for the specific vaccine being administered.
4. Individuals receiving any vaccine, or their legal representative, will sign a consent form prior to the administration of the vaccine. The completed, signed, and dated consent will be filed in the individual's medical record or employment medical record.

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RESPIRATORY VACCINE CONSIDERATIONS

1. If there is a national shortage of vaccines or other issue with availability leading to an inability to implement the vaccine program, the facility will demonstrate that:
   a. The vaccines have been ordered and the facility received either the vaccines or a confirmation of the order indicating that the vaccines have been shipped or that the products are not available but will be shipped when the supply is available.
   b. Plans are developed on how and when the vaccines will be administered when available.
   c. Residents will be screened to determine how many and which residents are eligible and wish to receive the vaccines; and
   d. Education regarding immunizations has been provided.
2. Documentation regarding the administration of all vaccines will include a physician order, the date of vaccination, lot number, expiration date, route of administration (IM/Deltoid/Right or Left), and signature of the licensed nurse who administered the vaccine.
3. Influenza (Flu), Respiratory Syncytial Virus (RSV) and COVID-19 are contagious respiratory illnesses, however they are caused by different viruses. COVID-19 is caused by infection with the coronavirus SARS-CoV-2, flu is caused by infection with influenza viruses and RSV is caused by the respiratory syncytial virus.
4. Because some of the symptoms of respiratory viruses are similar, it may be difficult to distinguish between them based on symptoms alone. Testing may be needed to confirm a diagnosis.
5. It is possible to be infected with more than one respiratory virus at the same time.
6. Getting a flu vaccine will not protect against other respiratory viruses, however the flu vaccination has many other important benefits. Flu vaccines have been shown to reduce the risk of flu illness, hospitalization, and death. Getting a flu vaccine this fall will be more important than ever, not only to reduce your risk from flu but also to help conserve potentially scarce health care resources.
7. Vaccination should be deferred (postponed) for people with suspected or confirmed respiratory illness (e.g., COVID-19 or other acute infection), regardless of whether they have symptoms, until they have met the criteria to discontinue their isolation.
8. Prior infection with suspected or confirmed respiratory viruses does not protect someone from future infections. Vaccination remains an important strategy to reduce the risk of illness, complications, hospitalization, and death from vaccine-preventable respiratory diseases in accordance with current CDC recommendations. Additional prevention measures, including hand hygiene, respiratory etiquette, staying home when ill, and appropriate infection prevention practices, are also important in reducing transmission of respiratory viruses.

References:

Center for Medicare & Medicaid Services, U.S. Department of Health and Human Services. State Operations Manual: Appendix PP – Guidance to Surveyors for Long Term Care Facilities. F883. https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdf

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WINTER RESPIRATORY VIRAL SEASON

Respiratory Virus Immunization

- Vaccination continues to be a pillar of public health, protecting individuals and the larger community.
- Adverse events from existing vaccines are rare and the cost of treating these events is minimal compared with the morbidity and mortality associated with vaccine-preventable diseases.
- Currently there are four (4) respiratory vaccines available to most nursing home residents; influenza, RSV, pneumococcal and COVID-19 vaccines.
- The Centers for Medicare and Medicaid Services (CMS)requires nursing homes to educate and offer influenza, pneumococcal, and COVID-19 vaccines to residents in accordance with federal regulations and current public health guidance. RSV vaccine is recommended for those over 60 years old.
- Immunization rates for these infections reveal significant room for improvement.
- If residents are unsure of their vaccine status, it is advised that they be given the vaccine.
- High-dose influenza vaccines have been developed specifically to overcome immunosenescence common among older adults.
- For people with allergies to eggs, the CDC stated that extra measures are no longer needed. People with egg allergies can receive any flu vaccine, egg-based or non-egg based.
- Even when the seasonal influenza vaccine is not a particularly good match, these immunizations reduce both the incidence and the severity of the influenza as well as help protect others through herd immunity.
- There are currently two pneumococcal vaccines licensed in the United States for use in adults:
    - 23-valent pneumococcal polysaccharide vaccines (PPSV23)
    - 13-valent pneumococcal conjugate vaccine (PCV13, PCV15, and PCV20)
- On October 23, 2024, the Advisory Committee on Immunization Practices recommended a single dose of PCV for all adults aged ≥50 years who are PCV-naïve or who have unknown vaccination history. The risk-based recommendation for adults aged 19–49 years is unchanged. Pneumococcal vaccination recommendations for older adults should follow current recommendations from the Centers for Disease Control and Prevention (CDC) and Advisory Committee on Immunization Practices (ACIP), including guidance regarding PCV15, PCV20, PCV21, PPSV23, and shared clinical decision-making when applicable. The Advisory Committee on Immunization Practices recommends that all nursing home employees receive an annual influenza vaccination, including those who do not have direct patient care responsibilities.
- The Centers for Disease Control and Prevention (CDC) provides numerous resources as do state and local health departments.
- Nursing home leadership might consider paid leave or other benefits to workers who receive a vaccination.

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- Nursing home leadership may need to work with their local health department and health care system to provide free access to the vaccine, preferably on site and across all shifts, to promote staff participation.

Diagnosis and Treatment of Suspected Respiratory Tract Infections

- The diagnosis and treatment of suspected respiratory infections is a multifaceted process.
    - Recognizing symptoms of an acute infection.
    - Recognition of respiratory tract involvement.
    - The clinician conducts a diagnostic evaluation, initiates supportive care, considers viral testing when indicated, and evaluates whether bacterial pathogens may be involved.
- Antibiotic use should align with the facility's antibiotic stewardship program and include documentation of indication, dose, route, duration, and clinical rationale. Diagnosing respiratory tract infections in nursing home residents is difficult because older adults may present with atypical symptoms, underlying chronic conditions, and overlapping signs of viral and bacterial illness.
- Respiratory infections in nursing home residents may be caused by viruses, bacteria, or both; diagnostic evaluation and clinical judgment are needed to guide treatment decisions.
- This contributes to antibiotic overuse and subsequently to the growing problem of antibiotic resistance. Antibiotics do not treat viral infections and should be used only when bacterial infection is suspected or confirmed.
- Also, delays in recognizing viral respiratory infections can lead to outbreaks in nursing homes with increased mortality. Prompt identification, testing when indicated, source control, transmission-based precautions, and reporting according to facility policy are important to reduce spread.
- SARS-CoV-2 can cause infections that range from asymptomatic to typical cold-like symptoms affecting only the upper respiratory tract, to involvement of the lower respiratory tract with a viral pneumonia, increased oxygen requirements, acute respiratory distress syndrome and death.
- The relatively prolonged incubation period of COVID-19 infections means that infected individuals shed virus for a longer time before developing clinically recognizable symptoms.
- Older adults may experience both typical and atypical signs and symptoms of respiratory viral infection, including COVID-19, influenza and RSV.
- Typical signs include:
    - Fever
    - Cough
    - Increased oxygen requirements
    - Shortness of breath
    - Sore throat, congestion, or runny nose
    - Fatigue, weakness, or decline in function
- The threshold for adults to recognize fever is lower than applied to younger adults, the commonly accepted definition including any temperature > 100.0° F or repeated temperatures of > 99.0° F.

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- An atypical sign of respiratory infection in older adults is confusion and severe confusion may indicate delirium.
- Residents or staff with symptoms of respiratory illness should follow current CDC and facility guidance, including staying home or being restricted from work when ill, and returning only when symptoms are improving and fever has resolved according to current guidance.
- Other atypical signs include:
    - Diarrhea
    - Vomiting
    - Loss of appetite
- Typical symptoms of COVID-19 infection that older adults might report are:
    - Shortness of breath
    - Feeling feverish or chilled
    - Feeling tired or fatigued
    - Having a headache
    - Having muscle aches
    - New loss of taste or smell
- Sometimes, gastrointestinal "atypical symptoms" precede the respiratory tract symptoms by a few days.
- Nursing homes should be actively screening residents daily for signs and symptoms of COVID-19 infection.
- Any resident with a positive screen should undergo more thorough evaluation by a clinician, using a low threshold to initiate COVID-19 testing.
- A single case of COVID-19 infection among staff or residents in a nursing home is considered an outbreak.
- Perform testing for all residents and HCP identified as close contacts or on the affected unit(s) if using a broad-based approach, regardless of vaccination status.
    - Testing is recommended immediately (but not earlier than 24 hours after the exposure) and, if negative, again 48 hours after the first negative test and, if negative, again 48 hours after the second negative test. This will typically be at day 1 (where day of exposure is day 0), day 3, and day 5.
    - Due to challenges in interpreting the result, testing is generally not recommended for asymptomatic people who have recovered from SARS-CoV-2 infection in the prior 30 days. Testing should be considered for those who have recovered in the prior 31-90 days; however, an antigen test instead of a nucleic acid amplification test (NAAT) is recommended. This is because some people may remain NAAT positive but not be infectious during this period.
    - If there is no outbreak anyone with even mild symptoms of COVID-19, regardless of vaccination status, should receive a viral test for SARS-COV-2 as soon as possible.

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- Antibiotic stewardship remains critical during respiratory virus season and throughout the year.
- Consistent with the focus of CMS on antibiotic stewardship over the past years, the core elements of antibiotic stewardship (leadership, accountability, drug expertise, action, tracking, reporting and education) can all be applied to management of respiratory infections and prevention of antibiotic overuse.

Important Differences Between Nursing Homes and Assisted Living

- In the United States, assisted living provides supportive care to more than 800,000 residents.
- Most residents pay for their care privately.
- Cognitive impairment affects 70-90% of assisted living residents.
- 42% of assisted living residents have moderate or severe dementia.
- Family members are more involved in monitoring their relatives' well-being and medical status than are families of nursing home residents.
- Detection is also hampered because these settings are not always required to have a medical director or licensed nurse.
- Not all states have infection control policies for assisted living.

Supporting Staff During the Winter Virus Season

- The U.S. Department of Labor's Occupational Safety and Health Administration issued a notice on nursing home worker safety including tips for employers to keep staff safe, such as reducing intra-staff exposures by:
    - Limiting crowding in break rooms, live meetings and other group gatherings
    - Making sufficient PPE available
    - Continually monitoring the PPE supply.
    - Develop plans to accommodate staff shortages as reports indicate that staff shortages persist.
    - Include preparing for potential loss of staff due to illness or exposure torespiratory viruses.
    - The Families First Coronavirus Response Act (FFCRA) included provisions for worker paid leave. The law was intended to encourage employers to permit sick employees to stay home.
    - There are limitations to the act that may encourage staff to work while sick, which would expose others to infection or alternately, have these low-paid workers incur financial loss to protect the residents.
    - Emergency staffing plans should be developed to account for significant staffing shortages, including communication with the local health department and outreach to other local long-term care providers and hospitals.

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Preventing the Spread of Respiratory Viruses

- Influenza, RSV, and COVID-19 spread primarily via droplets and less commonly through fomite transmission and aerosolization.
- The influence of heating systems that recirculate air on increasing the aerosol spread of respiratory viruses is not yet clear.
- We know that masks and other PPE prevent the spread of respiratory viruses.
- Inadequate PPE has demonstrably increased the death toll in nursing homes, so it is critical to have access to ample supplies throughout respiratory virus season and during outbreaks.
- Isolate persons with active symptoms of a respiratory virus.
- Have a workable plan for addressing new symptoms among residents, staff, and their family members.
- The plans should include a focus not only on airborne transmission and PPE but also on handwashing and surface decontamination because respiratory viruses may spread through respiratory droplets, contact with contaminated surfaces, and airborne transmission under certain conditions. Appropriate hand hygiene, environmental cleaning, source control, and use of PPE are important infection prevention strategies.

Adult Immunization Schedule by Age (Addendum updated July 2, 2025) | Vaccines & Immunizations | CDC - https://www.cdc.gov/vaccines/hcp/imz-schedules/adult-age.html

I have read, understand and agree to adhere to the requirements outlined in this policy and procedure.

Administrator Signature: _____ Date: _____

Medical Director Signature: _____ Date: _____

Review Dates:_____ _____ _____ _____

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COVID-19 VACCINE
POLICY AND GUIDELINES

Policy

As a Condition of Participation in the Medicare and Medicaid programs, this center is required to provide education on the risks of transmitting COVID-19. All staff, students, volunteers, employees, contractors and any other individual who contracts with or provides services to our residents will take necessary precautions and adhere to recommendations established through this policy. The intent of this policy is to assist in preventing the spread of COVID-19 and other respiratory viruses to our employees and their families, our customers and visitors; and the community at large. This policy is consistent with all applicable laws, regulations, and guidance from federal, state and local health authorities.

As a condition of employment or access to the center, all staff, employees, and contractors are required to be educated on the risks and benefits of the COVID-19 vaccination. Employees who choose not to receive the vaccine will sign an acknowledgement of the educational information shared with them and a declination form both of which will be maintained in their personnel record.

Guidelines

It is required that all individuals in the center be provided with education on the COVID-19 vaccination Guidelines that have been established to assist with determining compliance with this policy.

1. It is required that all employees and contractors working within the center be provided with education on the risks and benefits of receiving a COVID-19 vaccination.
2. An educational program will be available to all employees which includes information about the vaccine, non-vaccine infection control and prevention measures, diagnosis, transmission and impact of COVID-19, the risk to residents, and resident exposure by other individuals.
3. New employees and contractors will be provided with an educational session that includes information about the vaccine, non-vaccine infection control and prevention measures, diagnosis, transmission and impact of COVID-19, the risk to residents, and resident exposure by other individuals.
4. Employees on leave of absence who return to work will be provided with an educational session which includes information about the vaccine, non-vaccine infection control and prevention measures, diagnosis, transmission and impact of COVID-19, the risk to residents, and resident exposure by other individuals.

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Medical Director Signature: _____ Date: _____

Review Dates: _____ _____ _____ _____

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Updated (2023–2024 Formula) Pfizer-BioNTech COVID-19 Vaccine

At-A-Glance

Guidance below summarizes basic storage, preparation, scheduling, administration, and dosage for all 2023–24 Pfizer-BioNTech COVID-19 Vaccine products.

Distributed in:



Ages: 6 months through 4 years

Multiple-dose vial: yellow cap and yellow label



Ages: 5 through 11 years

Single dose vial: blue cap and blue label



Ages: 12 years and older

Single-dose vial: gray cap and gray label

Plastic Manufacturer-filled syringe

Glass Manufacturer-filled syringe

Storage and Handling

Find additional guidance on storing vaccine properly at:

- CDC *Vaccine Storage and Handling Toolkit*
- Comirnaty | FDA
- Pfizer-BioNTech COVID-19 Vaccine | cvdvaccine.com

Ages	6 months through 4 years	5 through 11 years	12 years and older		
Supplied in:	3-dose multiple-dose vial (MDV)	Single-dose vial (SDV)	Single-dose vial (SDV)	Plastic Manufacturer-filled syringe (MFS)	Glass Manufacturer-filled syringe (MFS)
Cap and/or label color:	Yellow cap and yellow label	Blue cap and blue label	Gray cap and gray label	N/A	Carton with a pink stripe
Storage temperature before puncture or use after puncture	**Between**: ▪ -90°C and -60°C (-130°F and -76°F) until the expiration date ▪ 2°C and 8°C (36°F and 46°F) for up to 10 weeks ▪ 8°C and 25°C (46°F and 77°F) for up to 12 hours prior to the first puncture or use. **Do not store in a standard freezer** **NOTE:** The beyond-use date (10 weeks) replaces the manufacturer's expiration date but **NEVER** extends it. Always use the earliest date. Do NOT use vaccine after the expiration date or beyond-use date.				Between 2°C and 8°C (36°F and 46°F) until the expiration date **Do not store in an ultra-cold or standard freezer** Total time out of refrigeration temperatures cannot exceed 12 hours
Thawing frozen vaccine	**Between:** ▪ 2°C and 8°C (36°F and 46°F) for up to 2 hours OR ▪ Up to 25°C (77°F) for 30 minutes			**Between:** ▪ 2°C and 8°C (36°F and 46°F) for 2 hours (preferred method) OR ▪ Up to 25°C (77°F) for 60 minutes **Note:** Individual syringes thawed at room temperature that are not used immediately must be used within 4 hours or discarded.	N/A

Updated (2023–2024 Formula) Pfizer-BioNTech COVID-19 Vaccine

At-A-Glance

Preparation and Administration Basics

Find additional guidance on preparing and administering vaccine properly at:

- Interim Clinical Considerations for Use of COVID-19 Vaccines | CDC
- Vaccine Administration Resource Library | CDC
- Pfizer-BioNTech COVID-19 Vaccines | FDA
- Pfizer-BioNTech COVID-19 Vaccine | cvdvaccine.com

Preparation

- If the vaccine is frozen, thaw before use.
- Check the vial or syringe label to ensure the expiration date or BUD (if applicable) has not passed.
  - Use Pfizer-BioNTech expiration date tool at lotexpiry.cvdvaccine.com
- Product for ages 6 months through 4 years: mix with diluent.
  - Mix vial with 1.1 mL diluent. If using the MDV for the first time, record the date and time the vial was punctured. **NOTE:** The beyond-use time of 12 hours replaces the manufacturer's expiration date but NEVER extends it. Always use the earliest date. **Do NOT use vaccine after the expiration date or beyond-use time.**
- Products for 5 and older: **Do NOT dilute.**
- **Do NOT shake.** If using an SDV, gently invert prior to withdrawing vaccine.
- Refer to package insert or EUA Fact Sheet for detailed instructions.

Administration

- COVID-19 vaccines may be administered at the same clinical visit as other routinely recommended vaccines.

Recipient's Age	Dosage	Route	Needle gauge and length	Site
6 months through 4 years of age	0.3 mL/3 *µg*	IM injection	22–25 gauge, 1"*	**6 months–2 years of age:** Vastus lateralis muscle in the anterolateral thigh†
				2 through 4 years: Deltoid muscle in the upper arm‡
5 through 11 years of age	0.3 mL/10 *µg*L	IM injection	22–25 gauge, 1"*	Deltoid muscle in the upper arm‡
12 years of age and older	0.3 mL/30 *µg*	IM injection	22–25 gauge, 1–1.5"*§	Deltoid muscle in the upper arm‡

* A 5/8 inch needle may be used if administering the vaccine in the deltoid muscle AND the skin is stretched tightly and the subcutaneous tissue is not bunched for children and adolescents ages 1–18 years and adults ages 19 years and older who weigh less than 130 pounds.

† The deltoid muscle in the upper arm may be used if the muscle mass is adequate for children ages 1–2 years.

‡ The vastus lateralis muscle in the anterolateral thigh may be used as an alternate site.

§ See Vaccine Administration: Needle Gauge and Length chart for more details.

Updated (2023–2024 Formula) Pfizer-BioNTech COVID-19 Vaccine

At-A-Glance

Scheduling Doses

The number of recommended 2023–24 COVID-19 vaccine doses varies by age, vaccine, vaccination history, and the presence of moderate or severe immune compromise. Review CDC's Interim Clinical Considerations for Use of COVID-19 Vaccines in the United States for detailed clinical guidance when scheduling doses, and the Interim COVID-19 Immunization Schedule for summary information.

Contraindications, Precautions, and Post-Vaccination Observation

Screen for contraindications and precautions before administering EACH dose — even if the vaccine was previously administered.

Contraindications

History of a severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of the COVID-19 vaccine

Precautions

History of:

- A diagnosed non-severe allergy to a component of the COVID-19 vaccine
- Non-severe, immediate (onset less than 4 hours) allergic reaction after administration of a previous dose of one COVID-19 vaccine type, if receiving the same vaccine type
- Moderate to severe acute illness, with or without fever
- Multisystem inflammatory syndrome in children (MIS-C) or adults (MIS-A)
- Myocarditis or pericarditis within 3 weeks after a dose of any COVID-19 vaccine

Consider observing persons after vaccination to monitor for allergic reactions and syncope:

- **30 minutes** for persons with:
  - A history of a non-severe, immediate (onset within 4 hours) allergic reaction after a previous dose of one COVID-19 vaccine type, if receiving the same vaccine type
  - A history of a diagnosed non-severe allergy to a component of the COVID-19 vaccine, if receiving the same vaccine type
- **15 minutes:** All other persons

Documentation

Document each recipient's vaccine administration information:

- **Medical record:** The vaccine and the date it was administered, manufacturer, lot number, vaccination site and route, name and title of the person administering the vaccine
- **Vaccination record for recipient:** Date of vaccination, product name/manufacturer, lot number, and name/location of the administering clinic or health care professional
- **Immunization information system (IIS):** Report the vaccination to the appropriate state/local IIS.

Reporting of Vaccine Adverse Events

For licensed Pfizer-BioNTech COVID-19 vaccines (for people ages 12 years and older), healthcare providers are **strongly encouraged** to report to VAERS:

- Any adverse event that occurs after the administration of a vaccine licensed in the United States, whether or not it is clear that a vaccine caused the adverse event
- Vaccine administration errors, whether or not associated with an adverse event

For Pfizer-BioNTech COVID-19 vaccines given under an Emergency Use Authorization (for persons 11 years of age and younger)Vaccination providers are **required** to report to VAERS:

- Vaccine administration errors whether or not associated with an adverse event(AE)
- Serious AEs regardless of causality. Serious AEs per FDA are defined as:
  - Death
  - A life-threatening AE
  - Inpatient hospitalization or prolongation of existing hospitalization
  - A persistent or significant incapacity or substantial disruption of the ability to conduct normal life functions
  - A congenital anomaly/birth defect
  - An important medical event that based on appropriate medical judgment may jeopardize the individual and may require medical or surgical intervention to prevent one of the outcomes listed above

- Cases of Multisystem Inflammatory Syndrome (MIS) in children and adults
- Cases of myocarditis
- Cases of pericarditis
- Cases of COVID-19 that result in hospitalization or death

Reporting is also **encouraged** for other clinically significant adverse events, even if it is uncertain whether the vaccine caused the event.

Information on how to submit a report to VAERS is available at https://vaers.hhs.gov or by calling 1-800-822-7967.

In addition, anyone can register in V-safe after their COVID-19 vaccination to receive health check-ins via text messages or email.

Interim Clinical Considerations for Use of COVID-19 Vaccines in the United States

AT A GLANCE

- These clinical considerations provide guidance to healthcare professionals and public health officials on use of COVID-19 vaccines.
- The Table of Contents on each page can be used to navigate to all guidance pages.
- A PDF version of the complete clinical considerations is available below to download and print.

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Summary of recent changes

Last updated November 4, 2025

- The COVID-19 vaccination recommendations have been updated to reflect individual-based decision-making (also known as shared clinical decision-making) for people ages 6 months and older.
- Pfizer-BioNTech COVID-19 Vaccine is no longer authorized for children ages 6 months–4 years. The only FDA-approved COVID-19 vaccine available for this age group is Moderna (Spikevax).

Get email updates

Sign up for our email newsletter

Implementation resources

- General Immunization Schedules (Updated 10/7/2025)

Overview of COVID-19 Vaccines and Vaccination

AT A GLANCE

- Two types of COVID-19 vaccines are recommended for use in the United States: mRNA vaccines (Moderna and Pfizer-BioNTech) and a protein subunit vaccine (Novavax).
- Vaccination is based on individual-based decision-making (also known as shared clinical decision-making).
- Schedules for the 2025–2026 COVID-19 vaccines are based on age and immune status.

Introduction

These clinical considerations provide guidance to healthcare professionals and public health officials on use of COVID-19 vaccines. They are informed by:

- Recommendations of the Advisory Committee on Immunization Practices (ACIP) and CDC
- COVID-19 vaccine approval by the U.S. Food and Drug Administration (FDA)
- General Best Practices for Immunization

Types of COVID-19 vaccines

Two types of 2025–2026 COVID-19 vaccines are recommended for use in the United States:

- mRNA vaccines
  - Moderna COVID-19 Vaccines: Spikevax (approved for ages 6 months and older) and mNexspike (approved for ages 12 years and older). These vaccines are hereafter referred to collectively as Moderna COVID-19 Vaccine unless the specific vaccine name is relevant.
  - Pfizer-BioNTech COVID-19 Vaccine: Comirnaty (approved for ages 5 years and older). This vaccine is hereafter referred to as Pfizer-BioNTech COVID-19 Vaccine. There is currently no FDA-approved or FDA-authorized Pfizer-BioNTech COVID-19 vaccine for ages 6 months–4 years.

- Protein subunit vaccine
    - Novavax COVID-19 Vaccine: Nuvaxovid (approved for ages 12 years and older). This vaccine is hereafter referred to as Novavax COVID-19 Vaccine.

Age groups for approved use of 2025–2026 COVID-19 vaccines

- **Moderna (Spikevax):** 6 months and older
- **Moderna (mNexspike):** 12 years and older
- **Pfizer-BioNTech (Comirnaty):** 5 years and older
- **Novavax (Nuvaxovid):** 12 years and older

There is no preferential recommendation for the use of any one COVID-19 vaccine over another when more than one recommended and age-appropriate vaccine is available.

The 2024–2025 Moderna, Novavax, and Pfizer-BioNTech COVID-19 vaccines should not be used.

COVID-19 vaccine composition

The 2025–2026 formulations for COVID-19 vaccines in the United States are based on the Omicron JN.1-lineage of SARS-CoV-2, as follows:

- Moderna and Pfizer-BioNTech: LP.8.1 strain
- Novavax: JN.1 strain

COVID-19 vaccine-specific package inserts and U.S. COVID-19 Vaccine Product Information can be consulted for a full list of ingredients and information on the conditions of use, storage and handling, preparation, and administration procedures.

Overview of recommendations for the use of COVID-19 vaccines

Groups recommended for vaccination

COVID-19 vaccination is recommended for the prevention of COVID-19 disease and its complications as follows:

- **Adults ages 65 years and older:** Vaccination based on individual-based decision-making (also known as shared clinical decision-making)
- **People ages 6 months–64 years:** Vaccination based on individual-based decision-making (also known as shared clinical decision-making)—with an emphasis that the risk-benefit of vaccination is most favorable for individuals who are at an increased risk for severe COVID-19 disease and lowest for individuals who are not at an increased risk, according to the CDC list of COVID-19 risk factors.

In addition to the CDC list of risk factors for severe COVID-19, the Moderna (Spikevax) package insert states that prematurity (birth at <37 weeks gestational age) has been associated with COVID-19-related hospitalizations in children ages 6–23 months.

Additionally, some people may be at increased risk for SARS-CoV-2 infection including healthcare workers and residents and employees in long-term care facilities and other residential congregate settings.

The vaccination schedules for the 2025–2026 COVID-19 vaccines vary based on vaccination history, age group, and immune status. Detailed schedules, including age-appropriate vaccines, dosages, and intervals between doses for the 2025–2026 COVID-19 vaccines can be found in Table 1; a modified schedule for people who are moderately or severely immunocompromised can be found in Table 2. Because there is no current FDA-approved or FDA-authorized Pfizer-BioNTech COVID-19 Vaccine for children ages 6 months–4 years, the 2025–2026 COVID-19 vaccination schedule has been modified to ensure children previously vaccinated with Pfizer-BioNTech COVID-19 Vaccine receive a 2025–2026 COVID-19 vaccine dose(s) with Moderna (Spikevax) COVID-19 Vaccine.

Self-attestation of COVID-19 risk factors

People can self-attest to factors that increase their risk for severe COVID-19 during the individual-based decision-making process and receive COVID-19 vaccine doses wherever vaccines are offered. Vaccinators should not deny COVID-19 vaccination to a person due to lack of documentation.

Vaccine dosage and administration

General Best Practices for Immunization apply to COVID-19 vaccination unless otherwise noted. People should receive the age-appropriate vaccine product and dosage based on their age on the day of vaccination and follow the recommended dosing intervals (Table 1 and Table 2).

COVID-19 vaccine doses should be administered by the intramuscular route.

2025–2026 COVID-19 Vaccination Guidance

AT A GLANCE

- The 2025–2026 COVID-19 vaccine is recommended for people ages 6 months and older based on individual-based decision-making (also known as shared clinical decision making).
- The recommended vaccine and number of doses are based on age and vaccination history.
- People can self-attest to factors that increase their risk for severe COVID-19 and receive COVID-19 vaccination.
- See Table 2 for the vaccination schedule for people who are moderately or severely immunocompromised.

Introduction

COVID-19 vaccination is recommended for all adults ages 65 years and older based on individual-based decision-making (also known as shared clinical decision-making). For people ages 6 months–64 years, vaccination is recommended based on individual-based decision-making (also known as shared clinical decision-making)—with an emphasis that the risk-benefit of vaccination is most favorable for individuals who are at an increased risk for severe COVID-19 disease and lowest for individuals who are not at an increased risk, according to the CDC list of COVID-19 risk factors. In addition to the CDC list, the Moderna (Spikevax) package insert states that prematurity (birth at <37 weeks gestational age) has been associated with COVID-19-related hospitalizations in children ages 6–23 months.

Additionally, some people may be at increased risk for SARS-CoV-2 infection including healthcare workers and residents and employees in long-term care facilities and other residential congregate settings.

The 2025–2026 COVID-19 vaccination schedule is detailed in Table 1. The recommended vaccine and number of 2025–2026 COVID-19 vaccine doses are based on age and vaccination history.

Key updates to the 2025–2026 COVID-19 vaccination schedule

- For children ages 6 months–4 years, only Moderna (Spikevax) COVID-19 Vaccine is approved for use; Pfizer-BioNTech COVID-19 Vaccine is no longer authorized for this age group.
- Novavax COVID-19 Vaccine, approved for people ages 12 years and older, is administered as a single dose for initial vaccination.
- Moderna (mNexspike) COVID-19 Vaccine is approved for people ages 12 years and older.

Table 1: 2025–2026 COVID-19 vaccination schedule, November 4, 2025

1a: Ages 6–23 months

NOTE

In Table 1a, Moderna refers to Spikevax, the only COVID-19 vaccine approved for this age group.

Children ages 6–23 months previously vaccinated with Pfizer-BioNTech COVID-19 Vaccine should receive dose(s) of 2025–2026 Moderna COVID-19 Vaccine.

COVID-19 vaccination history before 2025–2026 vaccine*	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine† and interval between doses
Unvaccinated: • Administer initial series with 2025–2026 vaccine		
Unvaccinated	2	**2025–2026 Dose 1** (Moderna): Day 0 **2025–2026 Dose 2** (Moderna): 4–8 weeks after 2025–2026 Dose 1‡
Initiated but did not complete the initial series before 2025–2026 vaccine: • Complete initial series with 2025–2026 vaccine		
1 dose Moderna	1	**2025–2026 Dose 1** (Moderna): 4–8 weeks after last dose‡
1 dose Pfizer-BioNTech	2	**2025–2026 Dose 1** (Moderna): 3–8 weeks after last dose‡ **2025–2026 Dose 2** (Moderna): At least 4 weeks after 2025–2026 Dose 1
2 doses Pfizer-BioNTech	1	**2025–2026 Dose 1** (Moderna): At least 8 weeks after last dose
Completed the initial series before 2025–2026 vaccine: • Administer 1 dose of 2025–2026 vaccine		
2 or more doses Moderna or 3 or more doses Pfizer-BioNTech	1	**2025–2026 Dose 1** (Moderna): At least 8 weeks after last dose

*COVID-19 vaccination history refers to all doses of COVID-19 vaccine from any manufacturer received before the availability of the 2025–2026 COVID-19 vaccines.

†Dosage for Moderna (Spikevax): 0.25 mL/25 ug.

‡An 8-week interval between the first and second COVID-19 vaccine doses (i.e., extended interval) might reduce the rare risk of myocarditis and pericarditis associated with COVID-19 vaccines.

1b: Ages 2–4 years

NOTE

In Table 1b, Moderna refers to Spikevax, the only COVID-19 vaccine approved for this age group.

Moderna (Spikevax) is now administered to this age group as a single dose regardless of COVID-19 vaccination history.

See footnote* for guidance on children who transition from age 23 months to 2 years during initial vaccination with 2025–2026 vaccine.

COVID-19 vaccination history before 2025–2026 vaccine†	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine‡ and interval between doses
Unvaccinated: • Administer initial vaccination with 2025–2026 vaccine		
Unvaccinated	1	**2025–2026 Dose 1** (Moderna): Day 0
Previously vaccinated before 2025–2026 vaccine: • Administer 1 dose of 2025–2026 vaccine		
1 or more doses mRNA (Moderna or Pfizer-BioNTech) vaccine	1	**2025–2026 Dose 1** (Moderna): At least 8 weeks after last dose

*Children who transition from age 23 months to age 2 years during the initial vaccination with 2025–2026 vaccine (i.e., after they received Dose 1 but before Dose 2) should receive 1 dose of Moderna (Spikevax) 4–8 weeks after Dose 1.

†COVID-19 vaccination history refers to all doses of COVID-19 vaccine from any manufacturer received before the availability of the 2025–2026 COVID-19 vaccines.

‡Dosage for Moderna (Spikevax): 0.25 mL/25 ug.

1c: Ages 5–11 years

NOTE

Moderna (Spikevax) and Pfizer-BioNTech COVID-19 vaccines are approved for use in this age group.

In Table 1c, Moderna refers to Spikevax.

COVID-19 vaccination history before 2025–2026 vaccine*	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine† and interval between doses
Unvaccinated: • Administer 1 dose of 2025–2026 vaccine		
Unvaccinated	1	**2025–2026 Dose 1** (Moderna or Pfizer-BioNTech): Day 0
Previously vaccinated before 2025–2026 vaccine: • Administer 1 dose of 2025–2026 vaccine		
1 or more doses mRNA (Moderna or Pfizer-BioNTech) vaccine	1	**2025–2026 Dose 1** (Moderna or Pfizer-BioNTech): At least 8 weeks after last dose

*COVID-19 vaccination history refers to all doses of COVID-19 vaccine from any manufacturer received before the availability of the 2025–2026 COVID-19 vaccines.

†Dosage for Moderna (Spikevax): 0.25 mL/25 ug; dosage for Pfizer-BioNTech: 0.3 mL/10 ug.

1d: Ages 12–64 years

NOTE

Moderna (mNexspike), Moderna (Spikevax), Novavax, and Pfizer-BioNTech COVID-19 vaccines are approved for this age group.

Novavax is administered as a single dose for initial vaccination.

COVID-19 vaccination history before 2025–2026 vaccine*	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine† and interval between doses
Unvaccinated: • Administer 1 dose of 2025–2026 vaccine		
Unvaccinated	1	**2025–2026 Dose 1** (Moderna, Novavax, or Pfizer-BioNTech): Day 0
Previously vaccinated before 2025–2026 vaccine: • Administer 1 dose of 2025–2026 vaccine		
1 or more doses any COVID-19 vaccine (Moderna, Novavax, or Pfizer-BioNTech)	1	**2025–2026 Dose 1** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): At least 8 weeks after last dose; (Moderna [mNexspike]): At least 3 months after last dose‡

*COVID-19 vaccination history refers to all doses of COVID-19 vaccine from any manufacturer received before the availability of the 2025–2026 COVID-19 vaccines.

[†]Dosage for Moderna (mNexspike): 0.2 mL/10 ug; dosage for Moderna (Spikevax): 0.5 mL/50 ug; dosage for Novavax: 0.5 mL/5 ug rS protein and 50 ug Matrix-M adjuvant; dosage for Pfizer-BioNTech: 0.3 mL/30 ug.

[‡]The recommended interval for Moderna (mNexspike) is 3 months after the last dose; however, a dose administered at least 2 months after the last dose should not be repeated.

1e: Ages 65 years and older

NOTE

Moderna (mNexspike), Moderna (Spikevax), Novavax, and Pfizer-BioNTech COVID-19 vaccines are approved for this age group.

COVID-19 vaccination history before 2025–2026 vaccine[*]	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine[†] and interval between doses
Unvaccinated: • Administer 2 doses of 2025–2026 vaccine		
Unvaccinated	2	**2025–2026 Dose 1** (Moderna, Novavax, or Pfizer-BioNTech): Day 0 **2025–2026 Dose 2** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[‡] after 2025–2026 Dose 1
Previously vaccinated before 2025–2026 vaccine: • Administer 2 doses of 2025–2026 vaccine		

COVID-19 vaccination history before 2025–2026 vaccine*	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine† and interval between doses
1 or more doses any COVID-19 vaccine (Moderna, Novavax, or Pfizer-BioNTech)	2	**2025–2026 Dose 1** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): At least 8 weeks after last dose; (Moderna [mNexspike]): At least 3 months after last dose‡ **2025–2026 Dose 2** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1; (Moderna [mNexspike]): 6 months (minimum interval 3 months)‡ after 2025–2026 Dose 1

*COVID-19 vaccination history refers to all doses of COVID-19 vaccine from any manufacturer received before the availability of the 2025–2026 COVID-19 vaccines.

†Dosage for Moderna (mNexspike): 0.2 mL/10 ug; dosage for Moderna (Spikevax): 0.5 mL/50 ug; dosage for Novavax: 0.5 mL/5 ug rS protein and 50 ug Matrix-M adjuvant; dosage for Pfizer-BioNTech: 0.3 mL/30 ug.

‡The recommended interval for Moderna (mNexspike) is 3 months after the last dose; however, a dose administered at least 2 months after the last dose should not be repeated.

Self-attestation of COVID-19 risk factors

People can self-attest to factors that increase their risk for severe COVID-19 during the individual-based decision-making process and receive COVID-19 vaccine doses wherever vaccines are offered. Vaccinators should not deny COVID-19 vaccination to a person due to lack of documentation.

COVID-19 Vaccination Guidance for People Who Are Immunocompromised

AT A GLANCE

- COVID-19 vaccination is recommended for people ages 6 months and older who are moderately or severely immunocompromised based on individual-based decision-making (also known as shared clinical decision making).
- There is a modified COVID-19 vaccination schedule for people who are moderately or severely immunocompromised.
- People can self-attest to being moderately or severely immunocompromised and receive COVID-19 vaccination.
- Administering COVID-19 vaccines should not be delayed in patients taking immunosuppressive therapies.

Introduction

COVID-19 vaccination is recommended for people ages 6 months and older based on individual-based decision-making (also known as shared clinical decision-making). Moderate or severe immunocompromise is a risk factor for severe COVID-19. The recommended vaccine and number of 2025–2026 COVID-19 vaccine doses for people who are moderately or severely immunocompromised are based on age and vaccination history (Table 2).

Key updates to the 2025–2026 COVID-19 vaccination schedule for people who are moderately or severely immunocompromised:

- For children ages 6 months–4 years, only Moderna (Spikevax) COVID-19 Vaccine is approved for use; Pfizer-BioNTech COVID-19 Vaccine is no longer authorized for this age group.
- Moderna (mNexspike) COVID-19 vaccine is approved for people ages 12 years and older.
- For the multidose initial series, some of the intervals have been revised.
- For people who have completed the multidose initial series, two doses of age-appropriate 2025–2026 COVID-19 vaccine are recommended; additional doses are no longer recommended.

Table 2: 2025–2026 COVID-19 vaccination schedule for people who are moderately or severely immunocompromised, November 4, 2025

2a: Ages 6 months–4 years

NOTE

In Table 2a, Moderna refers to Spikevax, the only COVID-19 vaccine approved for this age group.

Children previously vaccinated with Pfizer-BioNTech COVID-19 Vaccine should receive dose(s) of 2025–2026 Moderna COVID-19 Vaccine.

COVID-19 vaccination history before 2025–2026 vaccine*	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine† and interval between doses
Unvaccinated: • Administer an initial 3-dose series with 2025–2026 vaccine • Administer 1 dose of 2025–2026 vaccine 6 months after completing initial series		
Unvaccinated	4	**2025–2026 Dose 1** (Moderna): Day 0 **2025–2026 Dose 2** (Moderna): 4 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna): At least 4 weeks after 2025–2026 Dose 2 **2025–2026 Dose 4** (Moderna): 6 months (minimum interval 2 months) after 2025–2026 Dose 3

Initiated but did not complete the 3-dose initial series before 2025–2026 vaccine: • Complete the 3-dose series with 2025–2026 vaccine • Administer 1 dose of 2025–2026 vaccine 6 months after completing initial series		
1 dose Moderna	3	**2025–2026 Dose 1** (Moderna): 4 weeks after last dose **2025–2026 Dose 2** (Moderna): At least 4 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna): 6 months (minimum interval 2 months) after 2025–2026 Dose 2
2 doses Moderna	2	**2025–2026 Dose 1** (Moderna): At least 4 weeks after last dose **2025–2026 Dose 2** (Moderna): 6 months (minimum interval 2 months) after 2025–2026 Dose 1
1 dose Pfizer-BioNTech	3	**2025–2026 Dose 1** (Moderna): 3 weeks after last dose **2025–2026 Dose 2** (Moderna): At least 4 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna): 6 months (minimum interval 2 months) after 2025–2026 Dose 2
2 doses Pfizer-BioNTech	2	**2025–2026 Dose 1** (Moderna): At least 8 weeks after last dose **2025–2026 Dose 2** (Moderna): 6 months (minimum interval 2 months) after 2025–2026 Dose 1

Completed the 3-dose initial series before 2025–2026 vaccine: • Administer 2 doses of 2025–2026 vaccine spaced 6 months apart		
3 or more doses Moderna or 3 or more doses Pfizer-BioNTech	2	**2025–2026 Dose 1** (Moderna): At least 8 weeks after last dose **2025–2026 Dose 2** (Moderna): 6 months (minimum interval 2 months) after 2025–2026 Dose 1

*COVID-19 vaccination history refers to all doses of COVID-19 vaccine from any manufacturer received before the availability of the 2025–2026 COVID-19 vaccines.

†Dosage for Moderna (Spikevax): 0.25 mL/25 ug.

2b: Ages 5–11 years

NOTE

Moderna (Spikevax) and Pfizer-BioNTech vaccines are approved for this age group. In Table 2b, Moderna refers to Spikevax.

See footnote* for guidance on children who transition from age 4 years to age 5 years during the initial vaccination series.

COVID-19 vaccination history before 2025–2026 vaccine†	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine‡ and interval between doses
Unvaccinated: • Administer an initial 3-dose series with 2025–2026 vaccine • Administer 1 dose of 2025–2026 vaccine 6 months after completing initial series		

COVID-19 vaccination history before 2025–2026 vaccine[†]	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine[‡] and interval between doses
Unvaccinated	4	**2025–2026 Dose 1** (Moderna): Day 0 **2025–2026 Dose 2** (Moderna): 4 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna): At least 4 weeks after 2025–2026 Dose 2 **2025–2026 Dose 4** (Moderna or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 3
	OR	
	4	**2025–2026 Dose 1** (Pfizer-BioNTech): Day 0 **2025–2026 Dose 2** (Pfizer-BioNTech): 3 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Pfizer-BioNTech): At least 4 weeks after 2025–2026 Dose 2 **2025–2026 Dose 4** (Moderna or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 3
Initiated but did not complete the 3-dose initial series before 2025–2026 vaccine: • Complete the 3-dose series with 2025–2026 vaccine • Administer 1 dose of 2025–2026 vaccine 6 months after completing initial series		
1 dose Moderna	3	**2025–2026 Dose 1** (Moderna): 4 weeks after last dose

COVID-19 vaccination history before 2025–2026 vaccine[†]	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine[‡] and interval between doses
		2025–2026 Dose 2 (Moderna): At least 4 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 2
2 doses Moderna	2	**2025–2026 Dose 1** (Moderna): At least 4 weeks after last dose **2025–2026 Dose 2** (Moderna or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1
1 dose Pfizer-BioNTech	3	**2025–2026 Dose 1** (Pfizer-BioNTech): 3 weeks after last dose **2025–2026 Dose 2** (Pfizer-BioNTech): At least 4 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 2
2 doses Pfizer-BioNTech	2	**2025–2026 Dose 1** (Pfizer-BioNTech): At least 4 weeks after last dose **2025–2026 Dose 2** (Moderna or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1
Completed the 3-dose initial series before 2025–2026 vaccine: • Administer 2 doses of 2025–2026 vaccine spaced 6 months apart		

COVID-19 vaccination history before 2025–2026 vaccine[†]	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine[‡] and interval between doses
3 or more doses Moderna or 3 or more doses Pfizer-BioNTech	2	**2025–2026 Dose 1** (Moderna or Pfizer-BioNTech): At least 8 weeks after last dose **2025–2026 Dose 2** (Moderna or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1

[*]Children who transition from age 4 years to age 5 years during the initial vaccination series should complete the 3-dose series using the dosage for children ages 5–11 years for all doses received on or after turning age 5 years:

- Moderna series: 2025–2026 Moderna, 0.25 mL/25 ug; there is no dosage change
- Pfizer-BioNTech series: 2025–2026 Pfizer-BioNTech, 0.3 mL/10 ug

[†]COVID-19 vaccination history refers to all doses of COVID-19 vaccine from any manufacturer received before the availability of the 2025–2026 COVID-19 vaccines.

[‡]Dosage for Moderna (Spikevax): 0.25 mL/25 ug; dosage for Pfizer-BioNTech: 0.3 mL/10 ug.

2c: Ages 12 years and older

NOTE

Moderna (mNexspike), Moderna (Spikevax), Novavax, and Pfizer-BioNTech COVID-19 vaccines are approved for this age group.

Moderna (mNexspike) and Moderna (Spikevax) may be used interchangeably in the initial 3-dose series.

See footnote* for guidance on children who transition from age 11 years to age 12 years during the initial vaccination series.

COVID-19 vaccination history before 2025–2026[†]	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine[‡] and interval between doses
Unvaccinated: • Administer an initial series with 2025–2026 vaccine • Administer 1 dose of 2025–2026 vaccine 6 months after completing initial series		
Unvaccinated	4	**2025–2026 Dose 1** (Moderna): Day 0 **2025–2026 Dose 2** (Moderna): 4 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna): At least 4 weeks after 2025–2026 Dose 2 **2025–2026 Dose 4** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 3; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 3
	OR	
	3	**2025–2026 Dose 1** (Novavax): Day 0 **2025–2026 Dose 2** (Novavax): 3 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 2; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 2
	OR	

COVID-19 vaccination history before 2025–2026[†]	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine[‡] and interval between doses
	4	**2025–2026 Dose 1** (Pfizer-BioNTech): Day 0 **2025–2026 Dose 2** (Pfizer-BioNTech): 3 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Pfizer-BioNTech): At least 4 weeks after 2025–2026 Dose 2 **2025–2026 Dose 4** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 3; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 3
Initiated but did not complete the initial series before 2025–2026 vaccine: • Complete the initial series with 2025–2026 vaccine • Administer 1 dose of 2025–2026 vaccine 6 months after completing initial series		
1 dose Moderna	3	**2025–2026 Dose 1** (Moderna): 4 weeks after last dose **2025–2026 Dose 2** (Moderna): At least 4 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 2; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 2
2 doses Moderna	2	**2025–2026 Dose 1** (Moderna): At least 4 weeks after last dose

COVID-19 vaccination history before 2025–2026[†]	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine[‡] and interval between doses
		2025–2026 Dose 2 (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 1
1 dose Pfizer-BioNTech	3	**2025–2026 Dose 1** (Pfizer-BioNTech): 3 weeks after last dose **2025–2026 Dose 2** (Pfizer-BioNTech): At least 4 weeks after 2025–2026 Dose 1 **2025–2026 Dose 3** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 2; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 2
2 doses Pfizer-BioNTech	2	**2025–2026 Dose 1** (Pfizer-BioNTech): At least 4 weeks after last dose **2025–2026 Dose 2** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 1
1 dose Novavax	2	**2025–2026 Dose 1** (Novavax): At least 3 weeks after last dose

COVID-19 vaccination history before 2025–2026[†]	Number of 2025–2026 doses indicated	Recommended 2025–2026 vaccine[‡] and interval between doses
		2025–2026 Dose 2 (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 1
Completed the initial series before 2025–2026 vaccine: • Administer 2 doses of 2025–2026 vaccine spaced 6 months apart		
3 or more doses Moderna or 3 or more doses Pfizer-BioNTech	2	**2025–2026 Dose 1** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): At least 8 weeks after last dose; (Moderna [mNexspike]): At least 3 months after last dose[§] **2025–2026 Dose 2** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 1
2 or more doses Novavax	2	**2025–2026 Dose 1** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): At least 8 weeks after last dose; (Moderna [mNexspike]): At least 3 months after last dose[§] **2025–2026 Dose 2** (Moderna [Spikevax], Novavax, or Pfizer-BioNTech): 6 months (minimum interval 2 months) after 2025–2026 Dose 1; (Moderna [mNexspike]): 6 months (minimum interval 3 months)[§] after 2025–2026 Dose 1

[*]Children who transition from age 11 years to age 12 years during the initial vaccination series should complete the 3-dose series using the dosage for people ages 12 years and older for all doses received on or after turning age 12 years.

[†]COVID-19 vaccination history refers to all doses of COVID-19 vaccine from any manufacturer received before the availability of the 2025–2026 COVID-19 vaccines.

[‡]Dosage for Moderna (mNexspike): 0.2 mL/10 ug; dosage for Moderna (Spikevax): 0.5 mL/50 ug; dosage for Novavax: 0.5 mL/5 ug rS protein and 50 ug Matrix-M adjuvant; dosage for Pfizer-BioNTech: 0.3 mL/30 ug.

[§]The recommended interval for Moderna (mNexspike) is 3 months after the last dose; however, a dose administered at least 2 months after the last dose should not be repeated.

Self-attestation of immunocompromised status

People can self-attest to their moderately or severely immunocompromised status during the individual-based decision-making process and receive COVID-19 vaccine doses wherever vaccines are offered. Vaccinators should not deny COVID-19 vaccination to a person due to lack of documentation.

COVID-19 vaccination and pemivibart

Pemivibart (Pemgarda) is a monoclonal antibody for COVID-19 pre-exposure prophylaxis in people who are moderately or severely immunocompromised and unlikely to mount an adequate immune response to COVID-19 vaccination and who meet the Food and Drug Administration (FDA)-authorized conditions for use. Pemivibart is not authorized for treatment of COVID-19 or for post-exposure prophylaxis. Healthcare providers should consult the pemivibart fact sheet and frequently asked questions for additional information.

Pemivibart is not a substitute for COVID-19 vaccination. People who are moderately or severely immunocompromised should receive COVID-19 vaccine according to the recommended schedule. Per the pemivibart Emergency Use Authorization (EUA), administration of pemivibart should be deferred for at least 2 weeks after a dose of COVID-19 vaccine.

Description of moderate and severe immunocompromising conditions and treatment

Moderate and severe immunocompromising conditions and treatments include **but are not limited to**:

- Active treatment for solid tumor and hematologic malignancies
- Hematologic malignancies associated with poor responses to COVID-19 vaccines regardless of current treatment status (e.g., chronic lymphocytic leukemia, non-Hodgkin lymphoma, multiple myeloma, acute leukemia)
- Receipt of solid-organ transplant or an islet transplant and taking immunosuppressive therapy
- Receipt of chimeric antigen receptor (CAR)-T-cell therapy or hematopoietic cell transplant (HCT) (within 2 years of transplantation or taking immunosuppressive therapy)
- Moderate or severe primary immunodeficiency (e.g., common variable immunodeficiency disease, severe combined immunodeficiency, DiGeorge syndrome, Wiskott-Aldrich syndrome)
- Advanced HIV infection (people with HIV and CD4 cell counts less than 200/mm^3, history of an AIDS-defining illness without immune reconstitution, or clinical manifestations of symptomatic HIV) or untreated HIV infection
- Active treatment with high-dose corticosteroids (i.e., 20 mg or more of prednisone or equivalent per day when administered for 2 or more weeks), alkylating agents, antimetabolites, transplant-related immunosuppressive drugs, cancer chemotherapeutic agents classified as severely immunosuppressive, tumor necrosis factor (TNF) blockers, and other biologic agents that are immunosuppressive or immunomodulatory (e.g., B-cell-depleting agents)

Factors to consider in assessing the general level of immune competence in a patient include disease severity, duration, clinical stability, complications, comorbidities, and any potentially immune-suppressing treatment.

For additional information about the degree of immune suppression associated with different medical conditions and treatments, providers can consult General Best Practices for Immunizations, the CDC Yellow Book, and the Infectious Diseases Society of America policy statement, 2013 IDSA Clinical Practice Guideline for Vaccination of the Immunocompromised Host.

Development of moderate or severe immunocompromise and revaccination

Development of moderate or severe immunocompromise after vaccination

People who were vaccinated for COVID-19 and subsequently become moderately or severely immunocompromised should follow the COVID-19 vaccination schedule in Table 2.

Considerations for revaccination

Recipients of HCT or CAR-T-cell therapy who received 1 or more doses of COVID-19 vaccine prior to or during treatment should be revaccinated. Revaccination should start at least 3 months (12 weeks) after transplant or CAR-T-cell therapy and should follow the currently recommended schedule for people who are unvaccinated (Table 2).

Revaccination may also be considered for patients who received 1 or more doses of COVID-19 vaccine during treatment with B-cell-depleting therapies (e.g., rituximab, ocrelizumab) that were administered over a limited period (e.g., as part of a treatment regimen for certain malignancies) according to the currently recommended schedule for people who are unvaccinated (Table 2). The suggested interval to start revaccination is about 6 months after completion of the B-cell-depleting therapy. Timing of vaccination for patients who receive B-cell-depleting therapies on a continuing basis (e.g., for treatment of certain autoimmune conditions such as rheumatoid arthritis or multiple sclerosis) is addressed in Considerations for timing of COVID-19 vaccination in relation to immunosuppressive therapies.

A patient's clinical team is best positioned to determine the degree of immune compromise, need for revaccination, and appropriate timing of revaccination.

Considerations for timing of COVID-19 vaccination in relation to immunosuppressive therapies

Administration of COVID-19 vaccines should not be delayed in patients taking immunosuppressive therapies. Whenever possible, COVID-19 vaccines should be administered at least 2 weeks before initiation or resumption of immunosuppressive therapies. For patients who receive B-cell-depleting therapies on a continuing basis, COVID-19 vaccines should be administered approximately 4 weeks before the next scheduled therapy.

Timing of COVID-19 vaccination should take into consideration:

- Current or planned immunosuppressive therapies
- Optimization of both the patient's medical condition and anticipated response to vaccination
- Individual benefits and risks

On a case-by-case basis, providers caring for these patients may administer Moderna, Novavax, and Pfizer-BioNTech COVID-19 vaccines outside of the FDA and CDC dosing intervals when, based on their clinical judgment, the benefits of vaccination are deemed to outweigh the potential and unknown risks for the recipient who is immunocompromised.

Implementation Guidance

AT A GLANCE

- Implementation guidance addresses practical issues that may arise during COVID-19 vaccination including simultaneous administration and interchangeability.

Simultaneous administration of COVID-19 vaccines with other vaccines

Routine administration of all age-appropriate doses of vaccines simultaneously, also known as coadministration, is acceptable for children, adolescents, and adults if there are no contraindications at the time of the healthcare visit.

There are additional considerations for simultaneous administration of an orthopoxvirus vaccine and COVID-19 vaccine as follows:

- There is no required minimum interval between receiving a dose of any COVID-19 vaccine and an orthopoxvirus vaccine, either JYNNEOS or ACAM2000 vaccine (e.g., for mpox prevention), regardless of which vaccine is administered first.
- Use of JYNNEOS vaccine should be prioritized over ACAM2000 in most scenarios when co-administering a COVID-19 vaccine and an orthopoxvirus vaccine.
- People, particularly adolescent or young adult males, who are recommended to receive both vaccines might consider waiting 4 weeks between vaccines out of an abundance of caution. This is because of the observed risk for myocarditis and pericarditis after receipt of ACAM2000 orthopoxvirus vaccine and COVID-19 vaccines, and the hypothetical risk for myocarditis and pericarditis after JYNNEOS vaccine. However, if a patient's risk for mpox or severe disease due to COVID-19 is increased, administration of mpox and COVID-19 vaccines should not be delayed.

Nirsevimab and **Clesrovimab:** Simultaneous administration of COVID-19 vaccine and nirsevimab or clesrovimab (long-acting monoclonal antibodies indicated for certain infants and young children for prevention of respiratory syncytial virus [RSV] lower respiratory tract disease) is acceptable.

Interchangeability of COVID-19 vaccines

The same COVID-19 vaccine should be administered whenever recommended (Table 1 and Table 2). In the following circumstances, a different age-appropriate COVID-19 vaccine may be administered:

- Same vaccine not available at the time of the clinic visit
- Previous dose unknown
- Person would otherwise not receive a recommended vaccine dose
- Person starts but unable to complete a vaccination series with the same COVID-19 vaccine due to a contraindication

Because there is no current FDA-approved or FDA-authorized Pfizer-BioNTech COVID-19 Vaccine for children ages 6 months–4 years, the 2025–2026 COVID-19 vaccination schedule has been modified to ensure children previously vaccinated with Pfizer-BioNTech COVID-19 Vaccine receive a 2025–2026 COVID-19 vaccine dose(s) with Moderna (Spikevax) COVID-19 Vaccine (Table 1 and Table 2).

A Vaccine Adverse Event Reporting System (VAERS) report is not indicated in any of the above circumstances.

Contraindications and Precautions

AT A GLANCE

- Providers should screen patients for contraindications and precautions to COVID-19 vaccination before administering a vaccine dose.
- CDC considers the conditions listed in Table 3 to be COVID-19 vaccination contraindications and precautions.
- There are additional considerations for people with a history of allergies or allergic reactions.

General principles

Healthcare providers who administer vaccines should screen patients for contraindications and precautions before each vaccine dose is administered. CDC considers the conditions listed in Table 3 to be COVID-19 vaccination contraindications and precautions.

Table 3. Contraindications and precautions to COVID-19 vaccination

Medical condition or history	Guidance	Recommended action
History of a severe allergic reaction* (e.g., anaphylaxis†) after a previous dose or to a component of the COVID-19 vaccine‡	Contraindication	Do not vaccinate with the same COVID-19 vaccine type.§ May administer the alternate COVID-19 vaccine type.§ See Considerations for people with a history of allergies and allergic reactions for additional information.
History of a diagnosed non-severe allergy* to a component of the COVID-19 vaccine‡	Precaution	May administer the alternate COVID-19 vaccine type.§

Medical condition or history	Guidance	Recommended action
History of a non-severe, immediate (onset less than 4 hours) allergic reaction* after administration of a previous dose of one COVID-19 vaccine type§	Precaution	For additional information, see Considerations for people with a history of allergies and allergic reactions.
Moderate or severe acute illness, with or without fever	Precaution	Defer vaccination until the illness has improved.
History of MIS-C or MIS-A	Precaution	See COVID-19 vaccination and MIS-C and MIS-A.
History of myocarditis or pericarditis within 3 weeks after a dose of any COVID-19 vaccine	Precaution	A subsequent dose of any COVID-19 vaccine should generally be avoided. See COVID-19 vaccination and myocarditis and pericarditis.

Abbreviations: MIS-C = multisystem inflammatory syndrome in children; MIS-A = multisystem inflammatory syndrome in adults

*For definitions of allergic reactions in Table 3 consult Interim Considerations: Preparing for the Potential Management of Anaphylaxis after COVID-19 Vaccination.

†Anaphylactic reactions have been rarely reported following receipt of COVID-19 vaccines (estimated incidence: 5 per million doses of mRNA COVID-19 vaccines administered). For more information on the assessment and potential management of anaphylaxis, see Interim Considerations: Preparing for the Potential Management of Anaphylaxis after COVID-19 Vaccination.

‡See package inserts for a full list of vaccine ingredients. mRNA COVID-19 vaccines contain polyethylene glycol (PEG).

§The mRNA COVID-19 vaccines (Moderna and Pfizer-BioNTech) are one type of COVID-19 vaccine and the protein subunit vaccine (Novavax) is another type of COVID-19 vaccine.

Considerations for people with a history of allergies or allergic reactions

People with a contraindication to one COVID-19 vaccine type (Table 3) may receive the alternative COVID-19 vaccine type in the usual vaccination setting. Consultation with an allergist-immunologist is encouraged to provide expert evaluation of the original allergic reaction, and depending on the outcome of the evaluation, reassess if administration of additional doses of the same vaccine type may be possible.

People with an allergy-related precaution to one COVID-19 vaccine type (Table 3) may receive the alternative COVID-19 vaccine type in the usual vaccination setting. Vaccination with the same COVID-19 vaccine type may be considered on an individual basis; the same vaccine type should be administered in an appropriate setting and under the supervision of a healthcare provider experienced in the management of severe allergic reactions. Additionally, if the same vaccine type is administered, an observation period of 30 minutes post-vaccination to monitor for allergic reactions and referral to an allergist-immunologist should be considered.

Healthcare professionals and health departments may request a consultation from CDC's Clinical Immunization Safety Assessment (CISA) Project for a complex COVID-19 vaccine safety question not readily addressed by CDC guidance.

Safety Considerations for COVID-19 Vaccines

AT A GLANCE

- In COVID-19 vaccine clinical trials, most local and systemic post-vaccination reactions were mild to moderate and resolved in 1–3 days.
- Myocarditis and pericarditis are rarely observed after COVID-19 vaccination.
- Reporting to the Vaccine Adverse Event Reporting System (VAERS) is strongly encouraged.
- Information on reporting adverse events to VAERS and how to register in V-safe is provided.

Safety considerations for COVID-19 vaccines

In clinical trials of COVID-19 vaccines, post-vaccination reactions were generally similar. While the frequency of some reactions varied by age, vaccine manufacturer, and vaccine dose, commonly reported reactions follow below.

- Local reactions included pain/tenderness, and, less commonly, swelling and redness at the injection site, and localized axillary or groin adenopathy on the same side as the vaccinated arm or thigh.
- Systemic reactions included fever, fatigue/malaise, headache, chills, myalgia, arthralgia, and diarrhea; among younger children, particularly those younger than age 3 years, systemic reactions also included irritability/crying, sleepiness, and loss of appetite.

In all age groups, most symptoms were mild to moderate in severity, typically began 1–3 days after vaccination, and resolved after 1–3 days.

Package inserts can be consulted for detailed information about post-vaccination reactions.

Febrile seizures in infants and young children occur infrequently after any vaccination. One febrile seizure was reported among participants ages 6 months–23 months in Moderna's COVID-19 vaccine clinical trial; febrile seizures have been reported during postmarketing use of the vaccine. The potential impact of simultaneous administration of COVID-19 and routine vaccines on the risk of febrile seizures has not been specifically studied. CDC is continuing to monitor for febrile seizures following COVID-19 vaccination in infants and young children.

COVID-19 vaccination and myocarditis and pericarditis

Considerations for COVID-19 vaccination

Cases of myocarditis and pericarditis have rarely been observed following receipt of COVID-19 vaccines used in the United States. Cases have occurred most frequently in adolescent and young adult males within 7 days after receiving the second dose of an mRNA COVID-19 vaccine (Moderna and Pfizer-BioNTech); however, cases have also been observed in females and after other doses. Data also suggest an increased risk of myocarditis and pericarditis following Novavax vaccination.

Vaccine recipients, especially males ages 12–39 years, should be made aware of the rare risk of myocarditis and pericarditis following receipt of these vaccines, and the benefit of COVID-19 vaccination in reducing the risk of severe outcomes from COVID-19, including the possibility of cardiac sequelae.

- Counseling should include the need to seek care if symptoms of myocarditis or pericarditis, such as chest pain, shortness of breath, or palpitations develop after vaccination, particularly in the week after vaccination.
- In younger children, symptoms of myocarditis might also include non-specific symptoms such as irritability, vomiting, poor feeding, tachypnea, or lethargy.
- Extending the interval between the first and second doses to 8 weeks (i.e., extended interval) might reduce the rare risk of vaccine-associated myocarditis and pericarditis. The extended interval consideration applies only to children ages 6–23 months who are not moderately or severely immunocompromised and receive a multidose initial series (Table 1)

For additional information on COVID-19 vaccine and myocarditis or pericarditis, see the June 2025 ACIP presentation and the vaccine package inserts.

For people who have a history of myocarditis associated with multisystem inflammatory syndrome in children (MIS-C) or multisystem inflammatory syndrome in adults (MIS-A), see COVID-19 vaccination and MIS-C and MIS-A.

Myocarditis or pericarditis within 3 weeks after a dose of COVID-19 vaccine

Development of myocarditis or pericarditis within 3 weeks after a dose of any COVID-19 vaccine is a precaution to a subsequent dose of any COVID-19 vaccine, and subsequent doses should generally be avoided. Experts advise that these people should:

- Generally **not receive** a subsequent dose of any COVID-19 vaccine
- If, after a risk assessment, the decision is made to administer a subsequent COVID-19 vaccine dose, wait until at least their episode of myocarditis or pericarditis has resolved and there is no evidence of ongoing heart inflammation or sequelae.
- Considerations for subsequent COVID-19 vaccination might include:
    - Myocarditis or pericarditis considered unrelated to vaccination (e.g., due to SARS-CoV-2 or other viruses)
    - Personal risk of severe COVID-19 (e.g., age, underlying medical conditions)
    - Timing of any immunomodulatory therapies; General Best Practices for Immunization can be consulted for more information

Myocarditis or pericarditis before COVID-19 vaccination or more than 3 weeks after a COVID-19 vaccine dose

People who have a history of myocarditis or pericarditis that occurred before COVID-19 vaccination or more than 3 weeks after a COVID-19 vaccine dose may receive any current Food and Drug Administration (FDA)-approved vaccine after the episode of myocarditis or pericarditis has completely resolved and there is no evidence of ongoing heart inflammation or sequelae. This includes people who had myocarditis or pericarditis due to SARS-CoV-2 or other viruses.

History of other heart disease

People who have a history of other heart disease, including congenital heart disease and Kawasaki disease, may receive any currently FDA-approved COVID-19 vaccine.

Reporting vaccine adverse events

VAERS

For all licensed COVID-19 vaccines (Moderna [mNexspike, Spikevax], Novavax, Pfizer-BioNTech) healthcare providers are strongly encouraged to report to the Vaccine Adverse Event Reporting System (VAERS) the following:

- Any adverse event that occurs after the administration of a vaccine licensed in the United States, whether or not it is clear that a vaccine caused the adverse event
- Vaccine administration errors, whether or not associated with an adverse event

Information on how to submit a report to VAERS is available at https://vaers.hhs.gov or by calling 1-800-822-7967.

V-safe

V-safe is an active surveillance system to rapidly monitor for reactogenicity and health events after COVID-19 vaccination. Vaccine recipients can register to participate in V-safe through the V-safe website.

Clinical Considerations for Special Situations and Populations

AT A GLANCE

- People who recently had SARS-CoV-2 infection may consider delaying a COVID-19 vaccine dose by up to 3 months.
- Additional considerations apply to people with a history of multisystem inflammatory syndrome (MIS).

COVID-19 vaccination and prior SARS-CoV-2 infection

COVID-19 vaccination recommendations apply regardless of prior symptomatic or asymptomatic SARS-CoV-2 infection, including people with Long COVID.

People who recently had SARS-CoV-2 infection may consider delaying a COVID-19 vaccine dose by up to 3 months from symptom onset or positive test (if infection was asymptomatic). Studies have shown that increased time between infection and vaccination might result in an improved immune response to vaccination. Also, a low risk of reinfection has generally been observed in the months following infection. Individual factors such as risk of severe COVID-19 and current indicators of community transmission should be taken into account when determining whether to delay getting a COVID-19 vaccination after infection.

COVID-19 vaccination and MIS-C and MIS-A

Multisystem inflammatory syndrome in children (MIS-C) and multisystem inflammatory syndrome in adults (MIS-A) are rare and potentially serious post-infectious complications of SARS-CoV-2 infection. Both are associated with a hyperinflammatory immune response to SARS-CoV-2 infection. In 2023, MIS-C incidence had declined 98% since the peak of the COVID-19 pandemic despite continued SARS-CoV-2 transmission.

There have been rare reports of multisystem inflammatory syndrome (MIS)-like illness after COVID-19 vaccination identified from U.S. surveillance (<1 MIS-C case per million vaccinated children without laboratory evidence of SARS-CoV-2 infection). However, whether there is a causal relationship between COVID-19 vaccination and MIS-like illness is unknown.

Considerations for initiating COVID-19 vaccination in people with a history of MIS-C or MIS-A

Two studies (published in 2022 and 2023) found that children with a history of MIS-C were not at increased risk for the reoccurrence of MIS-C or other serious adverse events including myocarditis. Experts consider the benefits of COVID-19 vaccination for people with a history of MIS-C or MIS-A to outweigh a theoretical risk of an MIS-like illness or the rare risk of myocarditis following COVID-19 vaccination for those who meet the following two **recovery criteria**:

1. Clinical recovery has been achieved, including return to baseline cardiac function; and
2. It has been at least 90 days after the diagnosis of MIS-C or MIS-A

COVID-19 vaccination may also be considered for people who had MIS-C or MIS-A and do not meet both criteria, at the discretion of their clinical care team. Experts view clinical recovery, including return to baseline cardiac function, as an important factor when considering COVID-19 vaccination. Additional factors, such as the risk of severe COVID-19 due to age or certain medical conditions, may also be considered.

Considerations for administration of subsequent COVID-19 vaccine doses in people diagnosed with MIS-C or MIS-A after COVID-19 vaccination

Onset of MIS more than 60 days after most recent COVID-19 vaccine dose

Administration of subsequent COVID-19 vaccine doses should be considered for those who meet the two recovery criteria described in the section immediately above.

Onset of MIS 60 days or fewer after most recent COVID-19 vaccine dose

For persons in this category who meet the recovery criteria described in the section immediately above, the decision whether to administer subsequent COVID-19 vaccine doses should be made on an individual basis by the clinical care team and patient or parent or guardian. Subsequent COVID-19 vaccine doses should especially be considered if there is strong evidence that the MIS-C or MIS-A was a complication of a recent SARS-CoV-2 infection.

Appendix: Vaccine Administration Errors and Deviations

AT A GLANCE

- Providers should consult the table on this page for guidance in managing different types of COVID-19 vaccine administration errors and deviations.
- Resources are provided for proper vaccine administration and error prevention.

Managing vaccine administration errors and deviations

NOTE

The package inserts and U.S. COVID-19 Vaccine Product Information should be referenced for detailed information on storage and handling, dosing and schedule, dose preparation, and administration of COVID-19 vaccines. The information provided below on managing vaccine administration errors should not be interpreted as a recommendation or promotion of unapproved use of the vaccines.

For all vaccine administration errors:

- Inform the recipient of the vaccine administration error.
- Consult with the jurisdiction immunization program and/or immunization information system (IIS) to determine how the dose should be entered into the IIS.
- Determine how the error occurred and implement strategies to prevent it from happening again. A discussion on strategies to prevent errors can be found in *Epidemiology and Prevention of Vaccine-Preventable Diseases* (Pink Book). Additional resources can be found on CDC's vaccine administration web page, including a job aid for preventing errors.
- Follow the revaccination guidance in the table below, using an age-appropriate COVID-19 vaccine product. Then continue with the recommended schedule for subsequent dose(s) unless otherwise noted in the table.

Vaccinators should consult Reporting vaccine adverse events for information on reporting to the Vaccine Adverse Event Reporting System (VAERS) after COVID-19 vaccination. To file an electronic report, see the VAERS website.

Table: Interim recommendations for COVID-19 vaccine administration errors and deviations

Type	Administration error/deviation	Interim recommendation
Site/route	• Incorrect site (i.e., site other than the deltoid muscle or vastus lateralis muscle)	• Do not repeat dose.
	• Incorrect route (e.g., subcutaneous)	• Do not repeat dose. • Inform the recipient of the potential for local and systemic adverse events.
Age	• 2025–2026 mRNA vaccine administered to recipient younger than age 6 months	• If the first dose is administered 5 or more days before age 6 months, repeat the dose on or after the date the recipient reaches 6 months; space the repeat dose at least 4 weeks after the invalid dose.*
Product and dosage	• Higher-than-approved dose administered (e.g., incorrect dose volume, incorrect product resulting in higher-than-approved dose)	• Do not repeat dose.†
	• Lower-than-approved dose administered (e.g., leaked out of the syringe, equipment failure, recipient pulled away, incorrect product resulting in lower-than-approved dose)	• Repeat dose immediately with correct dose (no minimum interval).‡ • However, if a half-volume dose of vaccine is administered to a recipient recommended for the full volume, another half-volume dose

Type	Administration error/deviation	Interim recommendation
		can be administered on the same clinic day, and the 2 doses can count as 1 full dose.
Storage and handling	• Dose administered after improper storage and handling (i.e., temperature excursion)	• Contact the manufacturer for information on the stability of the vaccine.[§] If the manufacturer does not have data to support the stability of the vaccine, repeat the dose immediately (no minimum interval).[‡]
	• Dose administered past the expiration/beyond-use date	• Repeat the dose immediately (no minimum interval).[‡]
Intervals	• Any COVID-19 dose administered prior to the minimum interval[¶]	• Repeat dose. Space the repeat dose after the dose given in error by at least the minimum interval (Table 1 and Table 2).[‡]
	• mNexspike administered at a 2-month interval instead of the recommended 3-month interval	• Do not repeat dose.
Interchangeability[#]	• One dose of 2025–2026 mRNA vaccine and 1 dose of 2025–2026 Novavax vaccine (in any order) administered to previously unvaccinated moderately or severely immunocompromised	• Administer 1 dose of any 2025–2026 vaccine at least 4 weeks after the last dose to complete initial vaccination, followed by 1 dose of any 2025–2026 vaccine 6 months later (Table 2).

Type	Administration error/deviation	Interim recommendation
	recipient age 12 years and older	

*In addition to the minimum age, for children who are not moderately or severely immunocompromised, an 8-week interval between the invalid dose and the repeat dose (i.e., extended interval) might reduce the rare risk of myocarditis and pericarditis associated with COVID-19 vaccines.

†If the administration error resulted in a higher-than-approved vaccine dose, in general a subsequent dose may still be administered at the recommended interval. However, if local or systemic side effects following vaccination are clinically concerning (outside of the expected side effect profile) or are ongoing at the time of the subsequent dose, this dose might be delayed, but this decision should be assessed on a case-by-case basis.

‡For people ages 6 months–64 years who are not moderately or severely immunocompromised, an 8-week interval between the dose given in error and the repeat dose (i.e., extended interval) might reduce the rare risk of myocarditis and pericarditis associated with COVID-19 vaccines.

§As of the date of this update, current manufacturer contact information is:

- Pfizer-BioNTech: 1-877-VAX-CO19 (1-877-829-2619)
- Moderna: 1-866-MODERNA (1-866-663-3762)
- Novavax: 1-844-NOVAVAX (1-844-668-2829)

See the package inserts for the most up-to-date manufacturer information.

¶Vaccine doses administered up to 4 days before the minimum interval (i.e., grace period) may be counted and do not need to be repeated.

#See Interchangeability of COVID-19 vaccines for circumstances in which a COVID-19 vaccine from a different manufacturer may be administered; a VAERS report is not required in these circumstances.

References and Previous Updates

AT A GLANCE

- Key references are listed.
- Summaries of previous updates to the clinical considerations are listed chronologically.

Key References

- ACIP COVID-19 Vaccine Recommendations | CDC
- COVID-19 Vaccines | FDA
- General Best Practices for Immunization

Previous updates

2025

May 1, 2025

- The Interim Clinical Considerations have been divided into multiple pages by guidance topic to enhance usability.

- Vaccination guidance and schedules are unchanged; some text has been reformatted and reorganized.

2024

October 31, 2024

- People ages 65 years and older, vaccinated under the routine schedule, are recommended to receive 2 doses of any 2024–2025 COVID-19 vaccine (i.e., Moderna, Novavax, or Pfizer-BioNTech) separated by 6 months (minimum interval 2 months) regardless of vaccination history, with one exception: Unvaccinated people who initiate vaccination with 2024–2025 Novavax COVID-19 Vaccine are recommended to receive 2 doses of Novavax followed by a third dose of any COVID-19 vaccine 6 months (minimum interval 2 months) later.

- People ages 6 months and older who are moderately or severely immunocompromised are recommended to receive:

- Unvaccinated: A multidose initial series with an age-appropriate COVID-19 vaccine and 1 dose 6 months (minimum interval 2 months) after completion of the initial series; may receive additional doses under shared clinical decision making
- Previously completed the multidose initial series: 2 age-appropriate doses of 2024–2025 COVID-19 vaccine 6 months (minimum interval 2 months) apart; may receive additional doses under shared clinical decision making

September 6, 2024

- Recommendations for the use of 2024–2025 Novavax COVID-19 Vaccine in people ages 12 years and older
- Updated guidance in the Interchangeability of COVID-19 vaccines section and in Appendix B on completion of an initial vaccination series if vaccine doses from different manufacturers are administered in certain circumstances

August 23, 2024

Recommendations for 2024–2025 Moderna COVID-19 Vaccine and 2024–2025 Pfizer-BioNTech COVID-19 Vaccine

People who are not moderately or severely immunocompromised

Initial vaccination

- Ages 6 months–4 years
  - 2 doses of 2024–2025 Moderna or 3 doses of 2024–2025 Pfizer-BioNTech
- Ages 5 years and older
  - 1 dose of 2024–2025 Moderna or 1 dose of 2024–2025 Pfizer-BioNTech

Received previous doses of a COVID-19 vaccine

- Ages 6 months–4 years
  - 1 or 2 doses of 2024–2025 mRNA vaccine from the same manufacturer as administered for initial vaccination, depending on the vaccine and the number of prior doses
- Ages 5 years and older
  - 1 dose of 2024–2025 Moderna or 1 dose of 2024–2025 Pfizer-BioNTech

Additional dose: An additional dose of 2024–2025 COVID-19 vaccine for people ages 65 years and older who are not moderately or severely immunocompromised is NOT currently recommended.

People who are moderately or severely immunocompromised

Initial vaccination

- Ages 6 months and older
    - 3 doses of 2024–2025 Moderna or 3 doses of 2024–2025 Pfizer-BioNTech

Received previous doses of a COVID-19 vaccine

- Recommended mRNA vaccine and number of 2024–2025 doses are based on age and vaccination history

Additional doses: People who are moderately or severely immunocompromised ages 6 months and older may receive 1 or more age-appropriate doses of a 2024–2025 mRNA COVID-19 vaccine.

April 4, 2024

- New guidance on COVID-19 vaccination and pemivibart (Pemgarda™), a monoclonal antibody authorized for COVID-19 pre-exposure prophylaxis in people who are moderately or severely immunocompromised and meet the FDA-authorized conditions for use

March 1, 2024

- All people ages 65 years and older should receive 1 additional dose of any updated (2023–2024 Formula) COVID-19 vaccine (i.e., Moderna, Novavax, Pfizer-BioNTech). For detailed guidance, see Table 1 and Table 2.
- Updated information for reporting adverse events to VAERS following administration of a COVID-19 vaccine.

February 12, 2024

- Post-vaccination reaction information updated in sections on pre-vaccination counseling and safety considerations for mRNA and Novavax vaccines to better align with EUA fact sheets for healthcare providers and package inserts.
- Information on the availability of the V-safe safety monitoring system for updated (2023–2024 Formula) Moderna, Novavax, and Pfizer-BioNTech COVID-19 vaccines added to the section on reporting of vaccine adverse events.

January 18, 2024

- Updated guidance on COVID-19 vaccine administration errors and deviations (Appendix B)

2023
November 3, 2023

- Guidance added to COVID-19 vaccination schedules for correct dosage and administration of updated (2023–2024 Formula) Moderna COVID-19 Vaccine in children ages 6 months–11 years.

October 24, 2023

- Age transitions: Updated guidance for children who transition during the initial COVID-19 vaccination series from age 4 years to age 5 years and children who are moderately or severely immunocompromised and transition from age 11 years to age 12 years to receive the age-appropriate dosage based on their age on the day of vaccination.
- Interchangeability of COVID-19 vaccines: Clarification of circumstances in which administration of COVID-19 vaccine doses from different manufacturers may be considered when doses from the same manufacturer are recommended.

October 6, 2023

- The updated 2023–2024 formulation of Novavax COVID-19 Vaccine is recommended for people ages 12 years and older as follows:
    - Initial vaccination: 2 doses of updated (2023–2024 Formula) Novavax COVID-19 Vaccine
    - Previously vaccinated with any Original monovalent or bivalent COVID-19 vaccine (Moderna, Novavax, Pfizer-BioNTech, Janssen): 1 dose of updated (2023–2024 Formula) Novavax Vaccine
- People who are moderately or severely immunocompromised may receive 1 or more additional updated (2023–2024 Formula) Novavax vaccine doses.
- People ages 12 years and older have the option of receiving either the updated (2023–2024 Formula) mRNA (Moderna, Pfizer-BioNTech) or updated (2023–2024 Formula) Novavax vaccine.

September 15, 2023

- Recommendations for use of the 2023–2024 formulations of Moderna COVID-19 Vaccine and Pfizer-BioNTech COVID-19 Vaccine:
    - Everyone ages 5 years and older is recommended to receive 1 dose of updated (2023–2024 Formula) mRNA COVID-19 vaccine
    - Children ages 6 months–4 years
        - Initial vaccination: should receive either 2 doses of updated (2023–2024 Formula) Moderna or 3 doses of updated (2023–2024 Formula) Pfizer-BioNTech COVID-19 vaccine
        - Received previous mRNA doses: need 1 or 2 doses of updated (2023–2024 Formula) Moderna or updated (2023–2024 Formula) Pfizer-BioNTech COVID-19 vaccine, depending on the number of prior doses
    - People who are moderately or severely immunocompromised
        - Initial vaccination: should receive a 3-dose series of updated (2023–2024 Formula) Moderna or updated (2023–2024 Formula) Pfizer-BioNTech COVID-19 vaccine
        - Received previous mRNA doses: need 1 or 2 doses of updated (2023–2024 Formula) Moderna or updated (2023–2024 Formula) Pfizer-BioNTech COVID-19 vaccine, depending on the number of prior doses
        - May receive 1 or more additional updated (2023–2024 Formula) mRNA COVID-19 vaccine doses
    - Bivalent mRNA COVID-19 vaccines are no longer recommended in the United States
- Updated guidance for COVID-19 vaccination and myocarditis or pericarditis
- Updated guidance for COVID-19 vaccination and Multisystem Inflammatory Syndrome (MIS) in children (MIS-C) and in adults (MIS-A)
- Reorganization and consolidation of sections on contraindications and precautions, including allergic reactions to COVID-19 vaccines

May 12, 2023

- Guidance for use of Janssen COVID-19 Vaccine has been removed as the vaccine is no longer available in the United States

May 1, 2023

- Revision of the mRNA COVID-19 vaccination schedule for people who are moderately or severely immunocompromised as follows:
    - At the time of initial vaccination, people ages 6 months and older are recommended to receive 3 bivalent mRNA doses
    - People ages 6 months and older who previously received only monovalent doses are recommended to receive 1 or 2 bivalent mRNA vaccine doses, depending on age and vaccine product
    - People who previously received a bivalent mRNA vaccine dose(s) have the option to receive 1 or more additional bivalent mRNA doses

April 22, 2023

- Revision of the mRNA COVID-19 vaccination schedule as follows:
    - At the time of initial vaccination, depending on vaccine product, children ages 6 months–4 years are recommended to receive 2 or 3 bivalent mRNA vaccine doses; children age 5 years are recommended to receive 1 or 2 bivalent mRNA vaccine doses
    - People ages 6 years and older who are unvaccinated or previously received only monovalent vaccine doses are recommended to receive 1 bivalent mRNA vaccine dose
    - People ages 65 years and older may receive 1 additional bivalent mRNA vaccine dose

March 16, 2023

- New recommendation for children ages 6 months–4 years who previously completed a 3-dose monovalent Pfizer-BioNTech primary series to receive 1 bivalent Pfizer-BioNTech booster dose at least 2 months after completion of the monovalent primary series.
- Vaccination providers are now required to report cases of myocarditis and pericarditis after receipt of a Janssen COVID-19 Vaccine to the Vaccine Adverse Event Reporting System (VAERS).

January 27, 2023

- As of January 26, 2023, EVUSHELD™ is not currently authorized for SARS-CoV-2 pre-exposure prophylaxis in the United States.

2022

December 9, 2022

- New recommendation for children ages 6 months–4 years who complete a Moderna primary series to receive 1 bivalent Moderna booster dose at least 2 months after completion of the primary series.
- Children age 5 years who complete a Moderna primary series may receive either the previously authorized bivalent Pfizer-BioNTech booster dose or the newly authorized bivalent Moderna booster dose at least 2 months after completion of the Moderna primary series.
- The previously authorized 3-dose Pfizer-BioNTech primary series for children ages 6 months–4 years has been revised as follows: a monovalent Pfizer-BioNTech vaccine is administered for the first and second doses, followed by 1 bivalent Pfizer-BioNTech vaccine as the third primary series dose, at least 8 weeks after the second monovalent primary series dose. A booster dose is not authorized for children in this age group who receive a Pfizer-BioNTech 3-dose primary series, including children who previously received a 3-dose monovalent Pfizer-BioNTech primary series.

October 19, 2022

- Guidance for use of a monovalent Novavax COVID-19 booster dose in people ages 18 years and older in limited situations

October 12, 2022

- New COVID-19 booster recommendations for people ages 5 years and older to receive 1 bivalent mRNA booster after completion of a monovalent primary series or previously received monovalent booster dose(s); these recommendations replace all prior booster recommendations for this age group
    - Recommendations for use of a bivalent Moderna booster dose in people ages 6–17 years
    - Recommendations for use of a bivalent Pfizer-BioNTech booster dose in people ages 5–11 years

September 23, 2022

- Reorganization and consolidation of the Interim Clinical Considerations to enhance usability. COVID-19 vaccination schedules and guidance are unchanged.

September 2, 2022

- New booster recommendation for people ages 12 years and older to receive 1 bivalent mRNA booster after completion of a monovalent primary series; it replaces all prior booster recommendations for this age group
    - Recommendations for use of a bivalent Moderna booster dose in people ages 18 years and older
    - Recommendations for use of a bivalent Pfizer-BioNTech booster dose in people ages 12 years and older
- Updated guidance for observation periods following COVID-19 vaccination
- Updated guidance on COVID-19 vaccination and multisystem inflammatory syndrome (MIS) in children (MIS-C) and in adults (MIS-A)

August 22, 2022

- Guidance for primary series vaccination using Novavax COVID-19 Vaccine in adolescents ages 12–17 years
- Reorganization of Janssen COVID-19 Vaccine guidance into an appendix

August 11, 2022

- Updated guidance on COVID-19 vaccination following exposure to SARS-CoV-2

July 20, 2022

- Guidance for primary series vaccination using Novavax COVID-19 Vaccine in adults ages 18 years and older
- Updated guidance on COVID-19 vaccination and myocarditis and pericarditis

June 30, 2022

- New clinical considerations for coadministration of mRNA COVID-19 vaccines and orthopoxvirus vaccines

June 24, 2022

- New guidance for use of Moderna COVID-19 Vaccine in children and adolescents ages 6–17 years

June 19, 2022

- New guidance for use of Pfizer-BioNTech COVID-19 Vaccine in children ages 6 months–4 years
- New guidance for use of Moderna COVID-19 Vaccine in children ages 6 months–5 years
- Reorganization of sections on COVID-19 vaccination recommendations and schedules
- Addition of new section in Special populations for infants and young children

May 20, 2022

- New guidance for use of a Pfizer-BioNTech COVID-19 Vaccine booster dose in children ages 5–11 years
- Updated guidance that the following people should receive a second COVID-19 booster dose:
    - People ages 12 years and older who are moderately or severely immunocompromised
    - People ages 50 years and older
- Updated guidance for people who are moderately or severely immunocompromised and are treated with B-cell-depleting therapies
- Clarification of COVID-19 vaccination guidance for multisystem inflammatory syndrome in children (MIS-C) and adults (MIS-A)
- Updated guidance for primary series vaccination after SARS-CoV-2 infection

April 21, 2022

- Added considerations for the option to receive a second COVID-19 vaccine booster dose
- Updated guidance for COVID-19 vaccination after SARS-CoV-2 infection

March 30, 2022

- Added guidance that people ages 12 years and older who are moderately or severely immunocompromised may choose to receive a second booster dose using an mRNA COVID-19 vaccine at least 4 months after the first booster dose
- Added guidance that adults ages 50 years and older who are not moderately or severely immunocompromised may choose to receive a second booster dose using an mRNA COVID-19 vaccine at least 4 months after the first booster dose
- Added guidance that people ages 18–49 years who are not moderately or severely immunocompromised and who received Janssen COVID-19 Vaccine as both their primary series dose and booster dose may receive a second booster dose using an mRNA COVID-19 vaccine at least 4 months after the first Janssen booster dose

- Further clarification of safety issues including those related to multisystem inflammatory syndrome in children (MIS-C) and adults (MIS-A) and myocarditis
- Updated information on the availability of Moderna COVID-19 Vaccine supplied in a vial with a red cap (0.25 mL dosage volume) and Moderna COVID-19 Vaccine supplied in a vial with a blue cap (0.5 mL dosage volume) for administration of a 50 µg booster dose.

February 22, 2022

- Added considerations for an 8-week interval between the first and second doses of a primary mRNA vaccine schedule

February 11, 2022

- Updated guidance for moderately or severely immunocompromised people
    - Clarification of existing recommendation to receive a 3-dose mRNA vaccine primary series followed by a booster dose for a total of 4 doses
    - New guidance to shorten the interval between completion of the mRNA vaccine primary series and the booster dose to at least 3 months (instead of 5 months)
    - New guidance for those who received the Janssen COVID-19 Vaccine primary series to receive an additional dose and a booster dose, for a total of 3 doses to be up to date
- Updated guidance that it is no longer necessary to delay COVID-19 vaccination following receipt of monoclonal antibodies or convalescent plasma
- Updated guidance on receiving a booster dose if vaccinated outside the United States
- Updated contraindication and precaution section to include history of myocarditis or pericarditis after an mRNA COVID-19 vaccine as a precaution
- Reorganized and condensed multiple sections

January 6, 2022

- Updated guidance for use of Pfizer-BioNTech COVID-19 Vaccine as a booster in people ages 12–17 years
- Updated guidance for administration of a COVID-19 vaccine booster dose at least 5 months after completion of an mRNA vaccine (Pfizer-BioNTech or Moderna) primary series
- Updated guidance for use of an additional primary dose for moderately or severely immunocompromised people ages 5–11 years who received a Pfizer-BioNTech vaccine primary series
- Updated recommendations for people who received COVID-19 vaccines outside the United States that are not FDA-authorized or approved

2021

December 23, 2021

- Updated information about a second formulation of Pfizer-BioNTech COVID-19 Vaccine that is authorized for use in persons ages 12 years and older
- Updated information on vaccinating people during quarantine after a known SARS-CoV-2 exposure or during COVID-19 outbreaks
- Update to alert providers of possible false positive Rapid Plasma Reagin (RPR; non-treponemal) test results in some people after COVID-19 vaccines
- Updated information on vaccine administration errors and deviations

December 17, 2021

- Updated guidance on use of Janssen (Johnson & Johnson) COVID-19 Vaccine

December 10, 2021

- Updated guidance for use of Pfizer-BioNTech COVID-19 vaccine as a booster dose in persons aged 16 years and older

November 29, 2021

- Updated recommendations for receipt of a COVID-19 vaccine booster dose

November 19, 2021

- Updated guidance for COVID-19 booster doses in recipients of mRNA COVID-19 vaccines

November 17, 2021

- Updated guidance in section on People who received COVID-19 vaccine outside the United States
- Updated guidance in section on People who received COVID-19 as part of a clinical trial

November 3, 2021

- Recommendations and clinical guidance for use of Pfizer-BioNTech COVID-19 Vaccine in children aged 5-11 years including updated section on Vaccination of children and adolescents
- Updated guidance on COVID-19 vaccine dosing and schedule
- Updated guidance for myocarditis and pericarditis after mRNA COVID-19 vaccination in new section on Considerations for mRNA COVID-19 vaccines: Pfizer-BioNTech and Moderna
- New guidance for people who received passive antibody products in section on COVID-19 vaccination and SARS-CoV-2 infection
- Updated guidance in section on People who received COVID-19 vaccine outside the United States
- Updated guidance in section on People who received COVID-19 as part of a clinical trial in the United States
- Updated guidance on Considerations for COVID-19 vaccination in moderately and severely immunocompromised people
- Updated guidance in section on Contraindications and precautions
- Updated Table in Appendix A: Vaccine administration errors and deviations
- Updated Appendix B: Triage of people with a history of allergies or allergic reactions
- Updated Appendix C: Ingredients included in COVID-19 vaccines
- Updated Appendix D: Potential characteristics of allergic reactions, vasovagal reactions, and vaccine side effects following COVID-19 vaccination

October 25, 2021

- Updated guidance in section on Considerations for use of a COVID-19 booster dose.
- New section added on Overview of COVID-19 vaccines recommendations.
- Updated guidance in section on COVID-19 vaccine dosage and schedule.
- Updated guidance in section on People vaccinated for prevention of COVID-19 outside the United States.

- Updated guidance in section on COVID-19 vaccination and SARS-CoV-2 infection for People with prior or current SARS-CoV-2 infection; People with a history of multisystem inflammatory syndrome in children (MIS-C) or adults (MIS-A); People who received passive antibody products; and Vaccinated people who subsequently develop COVID-19.
- New guidance on Considerations for COVID-19 revaccination in the section on Considerations for COVID-19 vaccination in moderately and severely immunocompromised people.
- Updated Table in Appendix A: Vaccine administration errors and deviations.

September 27, 2021

- New section on Considerations for use of a Pfizer-BioNTech COVID-19 Vaccine booster dose after completion of a Pfizer-BioNTech primary vaccine series.

September 15, 2021

- Updated information in the section on COVID-19 vaccination and SARS-CoV-2 infection.
- Updated information in the section on Vaccinating people with a known COVID-19 exposure or during COVID-19 outbreaks.
- New section on Vaccinating people receiving medical care unrelated to COVID-19.
- New section on Vaccinating people undergoing SARS-CoV-2 screening.

August 31, 2021

- New Advisory Committee on Immunization Practices (ACIP) recommendation for use of the U.S. Food and Drug Administration (FDA)-approved Pfizer-BioNTech (COMIRNATY) COVID-19 Vaccine in persons aged ≥16 years.
- Updated information in Key points to reflect currently available evidence.
- Updated information on COVID-19 vaccines in the Background section.
- Updated information in the section on Considerations for use of an additional dose of COVID-19 vaccine following a primary vaccine series.
- Updated laboratory testing information on timing of immune-based tests for tuberculosis infection in relation to COVID-19 vaccine administration.

August 25, 2021

- New section on people vaccinated for COVID-19 as part of a clinical trial in the United States.
- Updated considerations for use of an additional mRNA COVID-19 vaccine dose after an initial 2-dose COVID-19 mRNA vaccine series for immunocompromised people.

August 13, 2021

- New section on considerations for use of an additional dose of COVID-19 vaccine.
- New section on considerations for use of an additional mRNA COVID-19 vaccine dose after an initial 2-dose mRNA COVID-19 primary vaccine series for immunocompromised people.

August 11, 2021

- Updated considerations for women who are pregnant, lactating, trying to get pregnant now, or might become pregnant in the future.

August 6, 2021

- Updated considerations for COVID-19 vaccination in people with a history of Guillain-Barré syndrome.
- Updated information on vaccine administration errors and deviations in Appendix A (Table).

July 16, 2021

- Updated considerations regarding mRNA vaccine dosing intervals.
- Updated considerations for immunocompromised people.

July 2, 2021

- New section on considerations for use of mRNA COVID-19 vaccines in people with a history of myocarditis or pericarditis added to considerations for vaccination of people with certain underlying medical conditions.
- New information on the occurrence of myocarditis or pericarditis following vaccination with mRNA COVID-19 vaccines added to patient counseling.

June 1, 2021

- Information on cases of myocarditis and pericarditis occurring after mRNA COVID-19 vaccination, particularly in adolescents and young adults.
- Information on the efficacy of the Pfizer-BioNTech COVID-19 Vaccine in adolescents aged 12–15 years in patient counseling section.
- Updated data on local and systemic symptoms following vaccination with mRNA COVID-19 vaccines in patient counseling section.
- Clarification in contraindications and precautions and Appendix B of guidance for people with a history of an immediate allergic reaction to a vaccine or injectable therapy that contains a component also contained in a COVID-19 vaccine.
- Updated list of ingredients in COVID-19 vaccines (i.e., lack of metals) in Appendix C.
- Correction of footnote numbering.

May 14, 2021

- Updated information for authorized age groups to include vaccination of adolescents aged 12–15 years with Pfizer-BioNTech COVID-19 Vaccine.
- Updated information on coadministration of COVID-19 vaccines with other vaccines.
- A new section on persons with a history of multisystem inflammatory syndrome added to considerations for vaccination of people with certain underlying medical conditions.
- Updated recommendation for timing of COVID-19 vaccine administration in persons with a history of heparin-induced thrombocytopenia.
- Updated information on vaccination of children and adolescents.

April 27, 2021

- The Advisory Committee on Immunization Practices' updated interim recommendation for the use of the Janssen (Johnson & Johnson) COVID-19 Vaccine.
- Clarification that COVID-19 vaccination is recommended for all people 16 years and older added to key points and vaccine administration.
- Updated information about the Janssen COVID-19 Vaccine added to background.
- Requirements to be considered fully vaccinated added to vaccine administration and interchangeability of COVID-19 vaccine products.
- New section added for people vaccinated with COVID-19 vaccines not authorized in the United States.
- Clarification on COVID-19 vaccination and SARS-CoV-2 infection. People with prolonged post-COVID-19 symptoms should be offered COVID-19 vaccination.
- New section added on antiviral therapy and COVID-19 vaccination.

- Information on requesting a consultation from the Clinical Immunization Safety Assessment COVIDvax project added to considerations for vaccination of people with certain underlying medical conditions.
- New section added on considerations for use of the Janssen COVID-19 Vaccine in certain populations.
- Updated information and recommendations for vaccination of women who are pregnant or lactating.
- Updated recommendations for vaccination of children and adolescents.
- Updated information related to axillary lymphadenopathy added to patient counseling for mRNA COVID-19 vaccines.
- Updated information on the Janssen COVID-19 Vaccine added to patient counseling.
- Updated recommendations related to contraindications (polysorbate allergy) and precautions (most people with a precaution can and should be administered vaccine) for COVID-19 vaccines.

April 16, 2021

- Recommended pause in the use of Janssen (Johnson & Johnson) COVID-19 Vaccine.
- Recommendations for clinicians related to occurrence of cerebral venous sinus thrombosis (CVST) with thrombocytopenia after receipt of Janssen COVID-19 Vaccine.

March 5, 2021

- Public health recommendations for vaccinated people have been moved to: www.cdc.gov/coronavirus/2019-ncov/vaccines/stay-up-to-date.html.

March 3, 2021

- Clinical considerations added for use of Janssen (Johnson & Johnson) COVID-19 Vaccine.
- Updated recommendations for fully vaccinated people who subsequently develop COVID-19.
- Updated recommendations related to COVID-19 vaccination timing for immunocompromised people.
- Updated contraindications and precautions to mRNA COVID-19 vaccines.
- Updated information on interpretation of SARS-CoV-2 antibody test results after vaccination.

February 10, 2021

- New recommendations for preventing, reporting, and managing mRNA COVID-19 vaccine administration errors (Appendix A).
- Clarification on contraindications and precautions. People with a known (diagnosed) allergy to PEG, another mRNA vaccine component, or polysorbate, have a contraindication to vaccination. People with a reaction to a vaccine or injectable therapy that contains multiple components, one of which is PEG, another mRNA vaccine component or polysorbate, but in whom it is unknown which component elicited the immediate allergic reaction have a precaution to vaccination.
- Updated information on delayed, local injection-site reactions after the first mRNA vaccine dose. These reactions are neither a contraindication nor a precaution to the second dose.
- Updated quarantine recommendations for vaccinated people. Fully vaccinated people who meet criteria will no longer be required to quarantine following an exposure to someone with COVID-19. Additional considerations for patients and residents in healthcare settings are provided.
- Additional information and updated recommendations for testing for TB infection. TB testing can be done before or at the same time as mRNA COVID-19 vaccination, or otherwise delayed for ≥4 weeks after the completion of mRNA COVID-19 vaccination.

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger

UNITED STATES 2025

Vaccines and Other Immunizing Agents in the Child and Adolescent Immunization Schedule*

Monoclonal antibody	Abbreviation(s)	Trade name(s)
Respiratory syncytial virus monoclonal antibody (Nirsevimab)	RSV-mAb	Beyfortus
Vaccine	**Abbreviation(s)**	**Trade name(s)**
COVID-19 vaccine	1vCOV-mRNA	Comirnaty/Pfizer-BioNTech COVID-19 Vaccine
		Spikevax/Moderna COVID-19 Vaccine
	1vCOV-aPS	Novavax COVID-19 Vaccine
Dengue vaccine	DEN4CYD	Dengvaxia
Diphtheria, tetanus, and acellular pertussis vaccine	DTaP	Daptacel Infanrix
Haemophilus influenzae type b vaccine	Hib (PRP-T)	ActHIB Hiberix
	Hib (PRP-OMP)	PedvaxHIB
Hepatitis A vaccine	HepA	Havrix Vaqta
Hepatitis B vaccine	HepB	Engerix-B Recombivax HB
Human papillomavirus vaccine	HPV	Gardasil 9
Influenza vaccine (inactivated: egg-based)	IIV3	Multiple
Influenza vaccine (inactivated: cell-culture)	ccIIV3	Flucelvax
Influenza vaccine (live, attenuated)	LAIV3	FluMist
Measles, mumps, and rubella vaccine	MMR	M-M-R II Priorix
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-CRM	Menveo
	MenACWY-TT	MenQuadfi
Meningococcal serogroup B vaccine	MenB-4C	Bexsero
	MenB-FHbp	Trumenba
Meningococcal serogroup A, B, C, W, Y vaccine	MenACWY-TT/ MenB-FHbp	Penbraya
Mpox vaccine	Mpox	Jynneos
Pneumococcal conjugate vaccine	PCV15	Vaxneuvance
	PCV20	Prevnar 20
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23
Poliovirus vaccine (inactivated)	IPV	Ipol
Respiratory syncytial virus vaccine	RSV	Abrysvo
Rotavirus vaccine	RV1 RV5	Rotarix RotaTeq
Tetanus, diphtheria, and acellular pertussis vaccine	Tdap	Adacel Boostrix
Tetanus and diphtheria vaccine	Td	Tenivac Tdvax
Varicella vaccine	VAR	Varivax
Combination vaccines *(use combination vaccines instead of separate injections when appropriate)*		
DTaP, hepatitis B, and inactivated poliovirus vaccine	DTaP-HepB-IPV	Pediarix
DTaP, inactivated poliovirus, and *Haemophilus influenzae* type b vaccine	DTaP-IPV/Hib	Pentacel
DTaP and inactivated poliovirus vaccine	DTaP-IPV	Kinrix Quadracel
DTaP, inactivated poliovirus, *Haemophilus influenzae* type b, and hepatitis B vaccine	DTaP-IPV-Hib-HepB	Vaxelis
Measles, mumps, rubella, and varicella vaccine	MMRV	ProQuad

*Administer recommended vaccines if immunization history is incomplete or unknown. Do not restart or add doses to vaccine series for extended intervals between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

How to use the child and adolescent immunization schedule

1. Determine recommended vaccine by age **(Table 1)**
2. Determine recommended interval for catch-up vaccination **(Table 2)**
3. Assess need for additional recommended vaccines by medical condition or other indication **(Table 3)**
4. Review vaccine types, frequencies, intervals, and considerations for special situations **(Notes)**
5. Review contraindications and precautions for vaccine types **(Appendix)**

Report

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or 800-822-7967

Questions or comments

Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays.

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/hcp/imz-schedules/app.html

Helpful information

- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/acip-recs/hcp/vaccine-specific/index.html
- ACIP Shared Clinical Decision-Making Recommendations: www.cdc.gov/acip/vaccine-recommendations/shared-clinical-decision-making.html
- *General Best Practice Guidelines for Immunization* (including contraindications and precautions): www.cdc.gov/vaccines/hcp/imz-best-practices/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/current-vis/index.html
- Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak response): www.cdc.gov/surv-manual/php/

U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

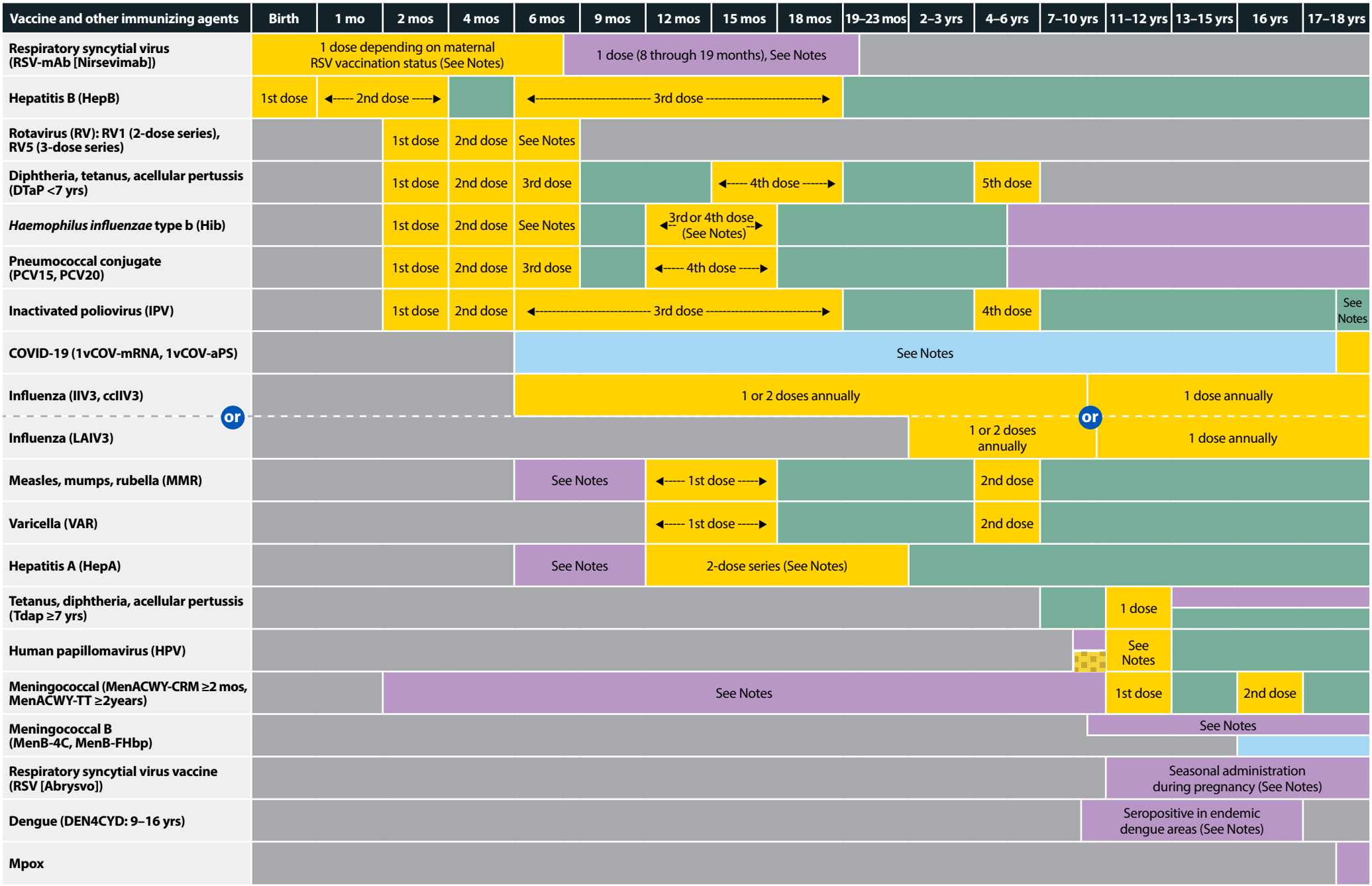
Scan QR code for access to online schedule

Revised 07/02/2025

CS363989-B

Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2025

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.
To determine minimum intervals between doses, see the catch-up schedule (Table 2).



Range of recommended ages for all children
Range of recommended ages for catch-up vaccination
Range of recommended ages for certain high-risk groups or populations
Recommended vaccination can begin in this age group
Vaccination is based on shared clinical decision-making
No Guidance/ Not Applicable

Table 2 Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2025

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. **Always use this table in conjunction with Table 1 and the Notes that follow.**

Children age 4 months through 6 years					
Vaccine	**Minimum Age for Dose 1**	**Minimum Interval Between Doses**			
		Dose 1 to Dose 2	**Dose 2 to Dose 3**	**Dose 3 to Dose 4**	**Dose 4 to Dose 5**
Hepatitis B	Birth	**4 weeks**	**8 weeks *and* at least 16 weeks after first dose** minimum age for the final dose is 24 weeks		
Rotavirus	6 weeks Maximum age for first dose is 14 weeks, 6 days.	**4 weeks**	**4 weeks** maximum age for final dose is 8 months, 0 days		
Diphtheria, tetanus, and acellular pertussis	6 weeks	**4 weeks**	**4 weeks**	**6 months**	**6 months** A fifth dose is not necessary if the fourth dose was administered at age 4 years or older ***and*** at least 6 months after dose 3
Haemophilus influenzae type b	6 weeks	**No further doses needed** if first dose was administered at age 15 months or older. **4 weeks** if first dose was administered before the 1st birthday. **8 weeks (as final dose)** if first dose was administered at age 12 through 14 months.	**No further doses needed** if previous dose was administered at age 15 months or older **4 weeks** if current age is younger than 12 months ***and*** first dose was administered at younger than age 7 months ***and*** at least 1 previous dose was PRP-T (ActHib, Pentacel, Hiberix), Vaxelis or unknown **8 weeks *and* age 12 through 59 months (as final dose)** if current age is younger than 12 months ***and*** first dose was administered at age 7 through 11 months; **OR** if current age is 12 through 59 months ***and*** first dose was administered before the 1st birthday ***and*** second dose was administered at younger than 15 months; **OR** if both doses were PedvaxHIB and were administered before the 1st birthday	**8 weeks (as final dose)** This dose only necessary for children age 12 through 59 months who received 3 doses before the 1st birthday.	
Pneumococcal conjugate	6 weeks	**No further doses needed** for healthy children if first dose was administered at age 24 months or older **4 weeks** if first dose was administered before the 1st birthday **8 weeks (as final dose for healthy children)** if first dose was administered at the 1st birthday or after	**No further doses needed** for healthy children if previous dose was administered at age 24 months or older **4 weeks** if current age is younger than 12 months ***and*** previous dose was administered at <7 months old **8 weeks (as final dose for healthy children)** if previous dose was administered between 7–11 months (wait until at least 12 months old); **OR** if current age is 12 months or older ***and*** at least 1 dose was administered before age 12 months	**8 weeks (as final dose)** This dose is only necessary for children age 12 through 59 months regardless of risk, or age 60 through 71 months with any risk, who received 3 doses before age 12 months.	
Inactivated poliovirus	6 weeks	**4 weeks**	**4 weeks** if current age is <4 years **6 months (as final dose)** if current age is 4 years or older	**6 months (minimum age 4 years for final dose)**	
Measles, mumps, rubella	12 months	**4 weeks**			
Varicella	12 months	**3 months**			
Hepatitis A	12 months	**6 months**			
Meningococcal ACWY	2 months MenACWY-CRM 2 years MenACWY-TT	**8 weeks**	See Notes	See Notes	
Children and adolescents age 7 through 18 years					
Meningococcal ACWY	Not applicable (N/A)	**8 weeks**			
Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis	7 years	**4 weeks**	**4 weeks** if first dose of DTaP/DT was administered before the 1st birthday **6 months (as final dose)** if first dose of DTaP/DT or Tdap/Td was administered at or after the 1st birthday	**6 months** if first dose of DTaP/DT was administered before the 1st birthday	
Human papillomavirus	9 years	**Routine dosing intervals are recommended.**			
Hepatitis A	N/A	**6 months**			
Hepatitis B	N/A	**4 weeks**	**8 weeks *and* at least 16 weeks after first dose**		
Inactivated poliovirus	N/A	**4 weeks**	**6 months** A fourth dose is not necessary if the third dose was administered at age 4 years or older ***and*** at least 6 months after the previous dose.	A fourth dose of IPV is indicated if all previous doses were administered at <4 years **OR** if the third dose was administered <6 months after the second dose.	
Measles, mumps, rubella	N/A	**4 weeks**			
Varicella	N/A	**3 months** if younger than age 13 years. **4 weeks** if age 13 years or older			
Dengue	9 years	**6 months**	6 months		

Table 3 Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2025

Always use this table in conjunction with Table 1 and the Notes that follow. Medical conditions are often not mutually exclusive. If multiple conditions are present, refer to guidance in all relevant columns. See Notes for medical conditions not listed.

Vaccine and other immunizing agents	Pregnancy	Immunocompromised status (excluding HIV infection)	HIV infection CD4 percentage and count[a]		CSF leak or cochlear implant	Asplenia or persistent complement component deficiencies	Heart disease or chronic lung disease	Kidney failure, End-stage renal disease or on dialysis	Chronic liver disease	Diabetes
			<15% or <200/mm³	≥15% and ≥200/mm³						
RSV-mAb (nirsevimab)		2nd RSV season		1 dose depending on maternal RSV vaccination status (See Notes)			2nd RSV season for chronic lung disease (See Notes)	1 dose depending on maternal RSV vaccination status (See Notes)		
Hepatitis B										
Rotavirus		SCID[b]								
DTaP/Tdap	DTaP Tdap: 1 dose each pregnancy									
Hib		HSCT: 3 doses	See Notes			See Notes				
Pneumococcal										
IPV										
COVID-19		See Notes		See Notes						
Influenza inactivated		Solid organ transplant: 18yrs (See Notes)								
LAIV3							Asthma, wheezing: 2–4 years[c]			
MMR	*									
VAR	*									
Hepatitis A										
HPV	*	3-dose series (See Notes)								
MenACWY										
MenB										
RSV (Abrysvo)	Seasonal administration (See Notes)									
Dengue										
Mpox	See Notes									

Recommended for all age-eligible children who lack documentation of a complete vaccination series

Not recommended for all children, but recommended for some children based on increased risk for or severe outcomes from disease

Vaccination is based on shared clinical decision-making

Recommended for all age-eligible children, and additional doses may be necessary based on medical condition or other indications. See Notes.

Precaution: Might be indicated if benefit of protection outweighs risk of adverse reaction

Contraindicated or not recommended
*Vaccinate after pregnancy, if indicated

No Guidance/ Not Applicable

a. For additional information regarding HIV laboratory parameters and use of live vaccines, see the General Best Practice Guidelines for Immunization, "Altered Immunocompetence," at www.cdc.gov/vaccines/hcp/imz-best-practices/altered-immunocompetence.html and Table 4-1 (footnote J) at www.cdc.gov/vaccines/hcp/imz-best-practices/contraindications-precautions.html.

b. Severe Combined Immunodeficiency

c. LAIV3 contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months

For vaccination recommendations for persons ages 19 years or older, see the Recommended Adult Immunization Schedule, 2025.

Additional information

- For calculating intervals between doses, 4 weeks = 28 days. Intervals of ≥4 months are determined by calendar months.
- Within a number range (e.g., 12–18), a dash (–) should be read as "through."
- Vaccine doses administered ≤4 days before the minimum age or interval are considered valid. Doses of any vaccine administered ≥5 days earlier than the minimum age or minimum interval should not be counted as valid and should be repeated as age appropriate. **The repeat dose should be spaced after the invalid dose by the recommended minimum interval.** For further details, see Table 3-2, Recommended and minimum ages and intervals between vaccine doses, in *General Best Practice Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/imz-best-practices/timing-spacing-immunobiologics.html.
- Information on travel vaccination requirements and recommendations is available at www.cdc.gov/travel/.
- For vaccination of persons with immunodeficiencies, see Table 8-1, Vaccination of persons with primary and secondary immunodeficiencies, in *General Best Practice Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/imz-best-practices/timing-spacing-immunobiologics.html, and Immunization in Special Clinical Circumstances (In: Kimberlin DW, Barnett ED, Lynfield Ruth, Sawyer MH, eds. *Red Book: 2021–2024 Report of the Committee on Infectious Diseases*. 32nd ed. Itasca, IL: American Academy of Pediatrics; 2021:72–86).
- For information about vaccination in the setting of a vaccine-preventable disease outbreak, contact your state or local health department.
- The National Vaccine Injury Compensation Program (VICP) is a no-fault alternative to the traditional legal system for resolving vaccine injury claims. All vaccines included in the child and adolescent vaccine schedule are covered by VICP except dengue, PPSV23, RSV, Mpox and COVID-19 vaccines. Mpox and COVID-19 vaccines are covered by the Countermeasures Injury Compensation Program (CICP). For more information, see www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cicp.

COVID-19 vaccination

(minimum age: 6 months [Moderna and Pfizer-BioNTech COVID-19 vaccines], 12 years [Novavax COVID-19 Vaccine])

Shared clinical decision-making

Ages 6 months –17 years who are NOT moderately or severely immunocompromised.

Shared clinical decision-making vaccinations are individually based and informed by a decision process between the health care provider and the patient or parent/guardian. Where the parent presents with a desire for their child to be vaccinated, children 6 months and older may receive COVID-19 vaccination, informed by the clinical judgment of a healthcare provider and personal preference and circumstances. www.cdc.gov/acip/vaccine-recommendations/shared-clinical-decision-making.html

Age 6 months–4 years

All vaccine doses should be from the same manufacturer.

- **Unvaccinated:**
  - 2 doses 2024–25 Moderna at 0, 4–8 weeks
  - 3 doses 2024–25 Pfizer-BioNTech at 0, 3–8, and at least 8 weeks after dose 2
- **Incomplete initial vaccination series before 2024–25 vaccine with:**
  - **1 dose Moderna:** complete initial series with 1 dose 2024–25 Moderna 4–8 weeks after most recent dose
  - **1 dose Pfizer-BioNTech:** complete initial series with 2 doses 2024–25 Pfizer-BioNTech 8 weeks apart (administer dose 1 3–8 weeks after most recent dose).
  - **2 doses Pfizer-BioNTech:** complete initial series with 1 dose 2024–25 Pfizer-BioNTech at least 8 weeks after the most recent dose.
- **Completed initial vaccination series before 2024–25 vaccine with:**
  - **2 or more doses Moderna:** 1 dose 2024–25 Moderna at least 8 weeks after the most recent dose.
  - **3 or more doses Pfizer-BioNTech:** 1 dose 2024–25 Pfizer-BioNTech at least 8 weeks after the most recent dose.

Age 5–11 years

- **Unvaccinated:** 1 dose 2024–25 Moderna or Pfizer-BioNTech
- **Previously vaccinated before 2024–25 vaccine with 1 or more doses Moderna or Pfizer-BioNTech:** 1 dose 2024–25 Moderna or Pfizer-BioNTech at least 8 weeks after the most recent dose.

Age 12–17 years

- **Unvaccinated:**
  - 1 dose 2024–25 Moderna or Pfizer-BioNTech
  - 2 doses 2024–25 Novavax at 0, 3–8 weeks
- **Previously vaccinated before 2024–25 vaccine with:**
  - **1 or more doses Moderna or Pfizer-BioNTech:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech at least 8 weeks after the most recent dose.
  - **1 dose Novavax:** 1 dose 2024–25 Novavax 3–8 weeks after most recent dose. If more than 8 weeks after most recent dose, administer 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech.
  - **2 or more doses Novavax:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech at least 8 weeks after the most recent dose.

Routine vaccination

Age 18 years who are NOT moderately or severely immunocompromised

- **Unvaccinated:**
  - 1 dose 2024–25 Moderna or Pfizer-BioNTech
  - 2 doses 2024–25 Novavax at 0, 3–8 weeks
- **Previously vaccinated before 2024–25 vaccine with:**
  - **1 or more doses Moderna or Pfizer-BioNTech:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech at least 8 weeks after the most recent dose.
  - **1 dose Novavax:** 1 dose 2024–25 Novavax 3–8 weeks after most recent dose. If more than 8 weeks after most recent dose, administer 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech.
  - **2 or more doses Novavax:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech at least 8 weeks after the most recent dose.

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COVID-19 vaccination - *continued*

Special situations

Persons who ARE moderately or severely immunocompromised.

Age 6 months–4 years

Use vaccine from the same manufacturer for all doses (initial vaccination series and additional doses*).

- **Unvaccinated:**
  - 4 doses (**3-dose initial series 2024–25 Moderna** at 0, 4 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna 6 months later [minimum interval 2 months]).May administer additional doses.*
  - 4 doses (**3-dose initial series 2024–25 Pfizer-BioNTech** at 0, 3 weeks, and at least 8 weeks after dose 2, followed by 1 dose 2024–25 Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses.*
- **Incomplete initial 3-dose vaccination series before 2024–25 vaccine:**
  - **Previous vaccination with Moderna**
    - **1 dose Moderna:** complete initial series with 2 doses 2024–25 Moderna at least 4 weeks apart (administer dose 1 4 weeks after most recent dose), followed by 1 dose 2024–25 Moderna 6 months later (minimum interval 2 months). May administer additional doses of Moderna.*
    - **2 doses Moderna:** complete initial series with 1 dose 2024–25 Moderna at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna 6 months later (minimum interval 2 months). May administer additional doses of Moderna.*
  - **Previous vaccination with Pfizer-BioNTech**
    - **1 dose Pfizer-BioNTech:** complete initial series with 2 doses 2024–25 Pfizer-BioNTech at least 8 weeks apart (administer dose 1 3 weeks after most recent dose), followed by 1 dose 2024–25 Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Pfizer-BioNTech.*
    - **2 doses Pfizer-BioNTech:** complete initial series with 1 dose 2024–25 Pfizer-BioNTech at least 8 weeks after most recent dose, followed by 1 dose 2024–25 Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Pfizer-BioNTech.*
- **Completed initial 3-dose vaccination series before 2024–25 vaccine with:**
  - **3 or more doses Moderna:** 2 doses 2024–25 Moderna 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses of Moderna.*
  - **3 or more doses Pfizer-BioNTech:** 2 doses 2024–25 Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses of Pfizer-BioNTech.*

Age 5–11 years

Use vaccine from the same manufacturer for all doses in the initial vaccination series.

- **Unvaccinated:**
  - 4 doses (**3-dose initial series 2024–25 Moderna** at 0, 4 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses.*
  - 4 doses (**3-dose initial series 2024–25 Pfizer-BioNTech** at 0, 3 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses.*
- **Incomplete initial 3-dose vaccination series before 2024–25 vaccine:**
  - **Previous vaccination with Moderna**
    - **1 dose Moderna:** complete initial series with 2 doses 2024–25 Moderna at least 4 weeks apart (administer dose 1 4 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Pfizer-BioNTech.*
    - **2 doses Moderna:** complete initial series with 1 dose 2024–25 Moderna at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Pfizer-BioNTech.*
  - **Previous vaccination with Pfizer-BioNTech**
    - **1 dose Pfizer-BioNTech:** complete initial series with 2 doses 2024–25 Pfizer-BioNTech at least 4 weeks apart (administer dose 1 3 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Pfizer-BioNTech.*
    - **2 doses Pfizer-BioNTech:** complete initial series with 1 dose 2024–25 Pfizer-BioNTech at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Pfizer-BioNTech.*
- **Completed initial 3-dose vaccination series before 2024–25 vaccine with:**
  - **3 or more doses Moderna or 3 or more doses Pfizer-BioNTech:** 2 doses 2024–25 Moderna or Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses of Moderna or Pfizer-BioNTech.*

Age 12–17 years

Use vaccine from the same manufacturer for all doses in the initial vaccination series.

- **Unvaccinated:**
  - 4 doses (**3-dose initial series Moderna** at 0, 4 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
  - 4 doses (**3-dose initial series Pfizer-BioNTech** at 0, 3 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
  - 3 doses (**2-dose initial series Novavax** at 0, 3 weeks, followed by 1 dose Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
- **Incomplete initial vaccination series before 2024–25 vaccine:**
  - **Previous vaccination with Moderna**
    - **1 dose Moderna:** complete initial series with 2 doses 2024–25 Moderna at least 4 weeks apart (administer dose 1 4 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
    - **2 doses Moderna:** complete initial series with 1 dose 2024–25 Moderna at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*

COVID-19 vaccination - *continued*

- **Previous vaccination with Pfizer-BioNTech**
  - **1 dose Pfizer-BioNTech:** complete initial series with 2 doses 2024–25 Pfizer-BioNTech at least 4 weeks apart (administer dose 1 3 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
  - **2 doses Pfizer-BioNTech:** complete initial series with 1 dose 2024–25 Pfizer-BioNTech at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
- **Previous vaccination with Novavax**
  - **1 dose Novavax:** complete initial series with 1 dose 2024–25 Novavax at least 3 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*

- **Completed initial 3-dose vaccination series before 2024–25 vaccine with:**
  - **3 or more doses Moderna or 3 or more doses Pfizer-BioNTech:** 2 doses 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
  - **2 or more doses Novavax:** 2 doses 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*

Age 18 years who ARE moderately or severely immunocompromised

Use vaccine from the same manufacturer for all doses in the initial vaccination series.

- **Unvaccinated:**
  - 4 doses (**3-dose initial series Moderna** at 0, 4 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
  - 4 doses (**3-dose initial series Pfizer-BioNTech** at 0, 3 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
  - 3 doses (**2-dose initial series Novavax** at 0, 3 weeks, followed by 1 dose Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
- **Incomplete initial vaccination series before 2024–25 vaccine:**
  - **Previous vaccination with Moderna**
    - **1 dose Moderna:** complete initial series with 2 doses 2024–25 Moderna at least 4 weeks apart (administer dose 1 4 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
    - **2 doses Moderna:** complete initial series with 1 dose 2024–25 Moderna at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
  - **Previous vaccination with Pfizer-BioNTech**
    - 1 dose Pfizer-BioNTech: complete initial series with 2 doses 2024–25 Pfizer-BioNTech at least 4 weeks apart (administer dose 1 3 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
    - 2 doses Pfizer-BioNTech: complete initial series with 1 dose 2024–25 Pfizer-BioNTech at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
  - **Previous vaccination with Novavax**
    - **1 dose Novavax:** complete initial series with 1 dose 2024–25 Novavax at least 3 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
- **Completed initial 3-dose vaccination series before 2024–25 vaccine with:**
  - **3 or more doses Moderna or 3 or more doses Pfizer-BioNTech:** 2 doses 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*
  - **2 or more doses Novavax:** 2 doses 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses of Moderna or Novavax or Pfizer-BioNTech.*

***Additional doses of 2024–25 COVID-19 vaccine for moderately or severely immunocompromised:** based on shared clinical decision-making and administered at least 2 months after the most recent dose. For description of moderate and severe immunocompromising conditions and treatment, see www.cdc.gov/covid/hcp/vaccine-considerations/immunocompromised.html#cdc_cg_special_populations_section_3-description-of-moderate-and-severe-immunocompromising-conditions-and-treatment

Unvaccinated persons have never received any COVID-19 vaccine doses. There is no preferential recommendation for the use of one COVID-19 vaccine over another when more than one recommended age-appropriate vaccine is available. Administer an age-appropriate COVID-19 vaccine product for each dose.

For information about transition from age 4 years to age 5 years or age 11 years to age 12 years during COVID-19 vaccination series, see Tables 1 and 2 at www.cdc.gov/covid/hcp/vaccine-considerations/index.html

For information about interchangeability of COVID-19 vaccines, see www.cdc.gov/covid/hcp/vaccine-considerations/index.html.

For more information on Emergency Use Authorization (EUA) indications for COVID-19 vaccines, see www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#covid19euas

Dengue vaccination (minimum age: 9 years)

Routine vaccination

- Age 9–16 years living in areas with endemic dengue **AND** have laboratory confirmation of previous dengue infection
  - 3-dose series administered at 0, 6, and 12 months
- Endemic areas include Puerto Rico, American Samoa, US Virgin Islands, Federated States of Micronesia, Republic of Marshall Islands, and the Republic of Palau. For updated guidance on dengue endemic areas and pre-vaccination laboratory testing see www.cdc.gov/mmwr/volumes/70/rr/rr7006a1.htm and www.cdc.gov/dengue/hcp/vaccine/
- Dengue vaccine should not be administered to children traveling to or visiting endemic dengue areas.

Diphtheria, tetanus, and pertussis (DTaP) vaccination (minimum age: 6 weeks [4 years for Kinrix or Quadracel])

Routine vaccination

- 5-dose series (3-dose primary series at age 2, 4, and 6 months, followed by booster doses at ages 15–18 months and 4–6 years)
  - **Prospectively:** Dose 4 may be administered as early as age 12 months if at least 6 months have elapsed since dose 3.
  - **Retrospectively:** A 4th dose that was inadvertently administered as early as age 12 months may be counted if at least 4 months have elapsed since dose 3.

Catch-up vaccination

- Dose 5 is not necessary if dose 4 was administered at age 4 years or older and at least 6 months after dose 3.
- For other catch-up guidance, see Table 2.

Special situations

- **Children younger than age 7 years with a contraindication specific to the pertussis component of DTaP:** May administer Td for all recommended remaining doses in place of DTaP. Encephalopathy within 7 days of vaccination when not attributable to another identifiable cause is the only contraindication specific to the pertussis component of DTaP. For additional information, see www.cdc.gov/pertussis/hcp/vaccine-recommendations/td-offlabel.html.
- **Wound management in children younger than age 7 years with history of 3 or more doses of tetanus-toxoid-containing vaccine:** For all wounds except clean and minor wounds, administer DTaP if more than 5 years since last dose of tetanus-toxoid-containing vaccine. For detailed information, see www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm.

Haemophilus influenzae type b vaccination (minimum age: 6 weeks)

Routine vaccination

- **ActHIB, Hiberix, Pentacel, or Vaxelis:** 4-dose series (3-dose primary series at age 2, 4, and 6 months, followed by a booster dose* at age 12–15 months)
  - *Vaxelis is not recommended for use as a booster dose. A different Hib-containing vaccine should be used for the booster dose.
- **PedvaxHIB:** 3-dose series (2-dose primary series at age 2 and 4 months, followed by a booster dose at age 12–15 months)
- **American Indian and Alaska Native infants:** Vaxelis and PedvaxHIB preferred over other Hib vaccines for the primary series.

Catch-up vaccination

- **Dose 1 at age 7–11 months:** Administer dose 2 at least 4 weeks later and dose 3 (final dose) at age12–15 months or 8 weeks after dose 2 (whichever is later).
- **Dose 1 at age 12–14 months:** Administer dose 2 (final dose) at least 8 weeks after dose 1.
- **Dose 1 before age 12 months and dose 2 before age 15 months:** Administer dose 3 (final dose) at least 8 weeks after dose 2.
- **2 doses of PedvaxHIB before age 12 months:** Administer dose 3 (final dose) at age12–59 months and at least 8 weeks after dose 2.
- **1 dose administered at age 15 months or older:** No further doses needed
- **Unvaccinated at age 15–59 months:** Administer 1 dose.
- **Previously unvaccinated children age 60 months or older who are not considered high risk:** Catch-up vaccination not required.

For other catch-up guidance, see Table 2. Vaxelis can be used for catch-up vaccination in children younger than age 5 years. Follow the catch-up schedule even if Vaxelis is used for one or more doses. For detailed information on use of Vaxelis see www.cdc.gov/mmwr/volumes/69/wr/mm6905a5.htm.

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Special situations

- **Chemotherapy or radiation treatment:**
  Age 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

  Doses administered within 14 days of starting therapy or during therapy should be repeated at least 3 months after therapy completion.
- **Hematopoietic stem cell transplant (HSCT):**
  - 3-dose series 4 weeks apart starting 6 to 12 months after successful transplant, regardless of Hib vaccination history
- **Anatomic or functional asplenia (including sickle cell disease):**
  Age 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

  Unvaccinated* persons age 5 years or older
  - 1 dose
- **Elective splenectomy:**
  Unvaccinated* persons age 15 months or older
  - 1 dose (preferably at least 14 days before procedure)
- **HIV infection:**
  Age 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

  Unvaccinated* persons age 5–18 years
  - 1 dose
- **Immunoglobulin deficiency, early component complement deficiency, or early component complement inhibitor use:**
  Age 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

Unvaccinated* = Less than routine series (through age 14 months) **or no doses (age 15 months or older)*

Hepatitis A vaccination
(minimum age: 12 months for routine vaccination)

Routine vaccination
- **2-dose series** (minimum interval: 6 months) at age 12–23 months

Catch-up vaccination
- **Unvaccinated persons through age 18 years should complete a 2-dose series** (minimum interval: 6 months).
- Persons who previously received 1 dose at age 12 months or older should receive dose 2 at least 6 months after dose 1.
- Adolescents age 18 years or older may receive HepA-HepB (Twinrix) as a 3-dose series (0, 1, and 6 months) or 4-dose series (3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months).

International travel
- Persons traveling to or working in countries with high or intermediate endemic hepatitis A (www.cdc.gov/travel/):
  - **Infants age 6–11 months**: 1 dose before departure; revaccinate with 2 doses (separated by at least 6 months) between age 12–23 months.
  - **Unvaccinated age 12 months or older**: Administer dose 1 as soon as travel is considered.

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Hepatitis B vaccination
(minimum age: birth)

Routine vaccination
- **Mother is HBsAg-negative**
  - 3-dose series at age 0, 1–2, 6–18 months **(use monovalent HepB vaccine for doses administered before age 6 weeks)**
    - Birth weight ≥2,000 grams: 1 dose within 24 hours of birth if medically stable
    - Birth weight <2,000 grams: 1 dose at chronological age 1 month or hospital discharge (whichever is earlier and even if weight is still <2,000 grams)
  - Infants who did not receive a birth dose should begin the series as soon as possible (see Table 2 for minimum intervals).
  - Administration of 4 doses is permitted when a combination vaccine containing HepB is used after the birth dose.
  - **Minimum intervals (see Table 2):** when 4 doses are administered, substitute "dose 4" for "dose 3" in these calculations.
  - **Final (3rd or 4th) dose:** age 6–18 months **(minimum age 24 weeks)**
- **Mother is HBsAg-positive**
  - **Birth dose (monovalent HepB vaccine only):** administer **HepB vaccine** and **hepatitis B immune globulin (HBIG)** in separate limbs within 12 hours of birth, regardless of birth weight.
  - **Birth weight <2000 grams:** administer 3 additional doses of HepB vaccine beginning at age 1 month (total of 4 doses).
  - **Final (3rd or 4th) dose:** administer at age 6 months **(minimum age 24 weeks)**.
  - Test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose. Do not test before age 9 months.
- **Mother is HBsAg-unknown**

  If other evidence suggestive of maternal hepatitis B infection exists (e.g., presence of HBV DNA, HBeAg-positive, or mother known to have chronic hepatitis B infection), manage infant as if mother is HBsAg-positive.
  - **Birth dose (monovalent HepB vaccine only):**
    - Birth weight ≥2,000 grams: administer **HepB vaccine** within 12 hours of birth. Determine mother's HBsAg status as soon as possible. If mother is determined to be HBsAg-positive, administer **HBIG** as soon as possible (in separate limb), but no later than 7 days of age.
    - Birth weight <2,000 grams: administer **HepB vaccine** and **HBIG** (in separate limbs) within 12 hours of birth. Administer 3 additional doses of **HepB vaccine** beginning at age 1 month (total of 4 doses).
  - **Final (3rd or 4th) dose:** administer at age 6 months **(minimum age 24 weeks)**.
  - If mother is determined to be HBsAg-positive or if status remains unknown, test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose. Do not test before age 9 months.

Catch-up vaccination
- Unvaccinated persons should complete a 3-dose series at 0, 1–2, 6 months. See Table 2 for minimum intervals.
- Adolescents age 11–15 years may use an alternative 2-dose schedule with at least 4 months between doses (adult formulation **Recombivax HB** only).
- Adolescents age 18 years may receive:
  - **Heplisav-B:** 2-dose series at least 4 weeks apart
  - **PreHevbrio*:** 3-dose series at 0, 1, and 6 months
  - **HepA-HepB (Twinrix):** 3-dose series (0, 1, and 6 months) or 4-dose series (3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months).

Special situations
- Revaccination is generally not recommended for persons with a normal immune status who were vaccinated as infants, children, adolescents, or adults.
- **Post-vaccination serology testing and revaccination** (if anti-HBs <10mIU/mL) is recommended for certain populations, including:
  - Infants born to HBsAg-positive mothers
  - Persons who are predialysis or on maintenance dialysis
  - Other immunocompromised persons
  - For detailed revaccination recommendations, see www.cdc.gov/acip-recs/hcp/vaccine-specific/hepatitis-b.html.

***Note:** PreHevbrio is not recommended in pregnancy due to lack of safety data in pregnant women.

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Human papillomavirus vaccination
(minimum age: 9 years)

Routine and catch-up vaccination

- HPV vaccination routinely recommended at **age 11–12 years (can start at age 9 years)** and catch-up HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated.
- 2- or 3-dose series depending on age at initial vaccination:
  - **Age 9–14 years at initial vaccination**: 2-dose series at 0, 6–12 months (minimum interval: 5 months; repeat dose if administered too soon)
  - **Age 15 years or older at initial vaccination**: 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2 = 4 weeks; dose 2 to dose 3 = 12 weeks; dose 1 to dose 3 = 5 months; repeat dose if administered too soon)
- No additional dose recommended when any HPV vaccine series **of any valency** has been completed using recommended dosing intervals.

Special situations

- **Immunocompromising conditions, including HIV infection:** 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
- **History of sexual abuse or assault:** Start at age 9 years
- **Pregnancy:** Pregnancy testing not needed before vaccination; HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant

Influenza vaccination
(minimum age: 6 months [IIV3], 2 years [LAIV3],18 years [recombinant influenza vaccine, RIV3])

Routine vaccination

- Use any influenza vaccine appropriate for age and health status annually:
  - **Age 6 months–8 years** who have received fewer than 2 influenza vaccine doses before July 1, 2024, or whose influenza vaccination history is unknown: 2 doses, separated by at least 4 weeks. Administer dose 2 even if the child turns 9 years between receipt of dose 1 and dose 2.
  - **Age 6 months–8 years** who have received at least 2 influenza vaccine doses before July 1, 2024: 1 dose.
  - **Age 9 years or older:** 1 dose
  - **Age 18 years solid organ transplant recipients receiving immunosuppressive medications:** high-dose inactivated (HD-IIV3) and adjuvanted inactivated (aIIV3) influenza vaccines are acceptable options. No preference over other age-appropriate IIV3 or RIV3.
- For the 2024–25 season, see www.cdc.gov/mmwr/volumes/73/rr/rr7305a1.htm.
- For the 2025–26 season, see the 2025–26 ACIP influenza vaccine recommendations.

Special situations

- **Close contacts (e.g., household contacts) of severely immunosuppressed persons who require a protected environment:** should not receive LAIV3. If LAIV3 is given, they should avoid contact with, or caring for such immunosuppressed persons for 7 days after vaccination.

Note: Persons with an egg allergy can receive any influenza vaccine (egg-based or non-egg based) appropriate for age and health status.

Measles, mumps, and rubella vaccination
(minimum age: 12 months for routine vaccination)

Routine vaccination

- 2-dose series at age 12–15 months, age 4–6 years
- MMR or MMRV* may be administered

Note: For dose 1 in children age 12–47 months, it is recommended to administer MMR and varicella vaccines separately. MMRV* may be used if parents or caregivers express a preference.

Catch-up vaccination

- **Unvaccinated children and adolescents:** 2-dose series at least 4 weeks apart*
- The maximum age for use of MMRV* is 12 years.

Special situations

- **International travel**
  - **Infants age 6–11 months:** 1 dose before departure; revaccinate with 2-dose series at age 12–15 months (12 months for children in high-risk areas) and dose 2 as early as 4 weeks later.*
  - **Children age 12 months or older:**
    - Unvaccinated: 2-dose series (separated by at least 4 weeks*) before departure
    - Previously received 1 dose: administer dose 2 at least 4 weeks after dose 1*
- In mumps outbreak settings, for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a7.htm

***Note:** If MMRV is used, the minimum interval between MMRV doses is 3 months.

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Meningococcal serogroup A,C,W,Y vaccination
(minimum age: 2 months [MenACWY-CRM, Menveo], 2 years [MenACWY-TT, MenQuadfi]), 10 years [MenACWY-TT/MenB-FHbp, Penbraya])

Routine vaccination
- 2-dose series at age 11–12 years; 16 years

Catch-up vaccination
- **Age 13–15 years:** 1 dose now and booster at age 16–18 years (minimum interval: 8 weeks)
- **Age 16–18 years:** 1 dose

Note: MenACWY vaccines may be administered simultaneously with MenB vaccines if indicated, but at a different anatomic site, if feasible.

Special situations
Anatomic or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:

- **Menveo***
  - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4, 6, and 12 months)
  - Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2 [and dose 3 if applicable] at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months)
  - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart
- **MenQuadfi**
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart

Travel to countries with hyperendemic or epidemic meningococcal disease, including countries in the African meningitis belt or during the Hajj (www.cdc.gov/travel/)**:**

- **Children younger than age 24 months:**
  - **Menveo* (age 2–23 months)**
    - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4, 6, and 12 months)
    - Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2 [and dose 3 if applicable] at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months)
    - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
- **Children age 2 years or older:** 1 dose Menveo* or MenQuadfi

First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits: 1 dose Menveo* or MenQuadfi

Adolescent vaccination of children who received MenACWY prior to age 10 years:

- **Children for whom boosters are recommended because of an ongoing increased risk of meningococcal disease** (e.g., those with complement component deficiency, HIV, or asplenia): Follow the booster schedule for persons at increased risk.
- **Children for whom boosters are not recommended** (e.g., a healthy child who received a single dose for travel to a country where meningococcal disease is endemic): Administer MenACWY according to the recommended adolescent schedule with dose 1 at age 11–12 years and dose 2 at age 16 years.

**Menveo has two formulations: lyophilized and liquid. The liquid formulation should not be used before age 10 years. See www.cdc.gov/vaccines/vpd/mening/downloads/menveo-single-vial-presentation.pdf.*

Note: For MenACWY **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Children age 10 years or older may receive a single dose of Penbraya as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day (see "Meningococcal serogroup B vaccination" section below for more information).

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Meningococcal serogroup B vaccination
(minimum age: 10 years [MenB-4C, Bexsero; MenB-FHbp, Trumenba; MenACWY-TT/MenB-FHbp, Penbraya])

Shared clinical decision-making
- **Adolescents not at increased risk age 16–23 years (preferred age 16–18 years)* based on shared clinical decision-making.**
  - **Bexsero or Trumenba (use same brand for all doses):** 2-dose series at least 6 months apart (if dose 2 is administered earlier than 6 months, administer dose 3 at least 4 months after dose 2)

*To optimize rapid protection (e.g., for students starting college in less than 6 months), a 3-dose series (0, 1–2, 6 months) may be administered.

For additional information on shared clinical decision-making for MenB, see www.cdc.gov/vaccines/media/pdfs/2025/03/2024-isd-job-aid-scdm-menb-508-remediated.pdf

Special situations
Anatomic or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use.

- **Bexsero or Trumenba (use same brand for all doses including booster doses)** 3-dose series at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed; if dose 3 is administered earlier than 4 months after dose 2, a 4th dose should be administered at least 4 months after dose 3)

For MenB **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Note: MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.

Children age 10 years or older may receive a dose of Penbraya (MenACWY–TT/MenB–FHbp) as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day. For age-eligible children not at increased risk, if Penbraya is used for dose 1 MenB, MenB-FHbp (Trumenba) should be administered for dose 2 MenB. For age-eligible children at increased risk of meningococcal disease, Penbraya may be used for additional MenACWY and MenB doses (including booster doses) if both would be given on the same clinic day **and** at least 6 months have elapsed since most recent Penbraya dose.

Mpox vaccination
(minimum age: 18 years [Jynneos])

Special situations

- **Age 18 years and at risk for mpox infection:** complete 2-dose series, 28 days apart.

  Risk factors for mpox infection include:
  - Persons who are gay or bisexual or other MSM, transgender, or nonbinary people who in the past 6 months have had:
    - A new diagnosis of at least 1 sexually transmitted disease
    - More than 1 sex partner
    - Sex at a commercial sex venue
    - Sex in association with a large public event in a geographic area where mpox transmission is occurring
  - Persons who are sexual partners of the persons described above
  - Persons who anticipate experiencing any of the situations described above
- **Pregnancy:** There is currently no ACIP recommendation for Jynneos use in pregnancy due to lack of safety data in pregnant women. Pregnant women with any risk factor described above may receive Jynneos.

For detailed information, see www.cdc.gov/monkeypox/hcp/vaccine-considerations/

Pneumococcal vaccination
(minimum age: 6 weeks [PCV15], [PCV 20]; 2 years [PPSV23])

Routine vaccination with PCV

- 4-dose series at 2, 4, 6, 12–15 months

Catch-up vaccination with PCV

- Healthy children ages 2–4 years with any incomplete* PCV series: 1 dose PCV
- For other catch-up guidance, see Table 2.

Note: For children **without** risk conditions, PCV20 is not indicated if they have received 4 doses of PCV13 or PCV15 or another age appropriate complete PCV series.

Special situations

Children and adolescents with cerebrospinal fluid leak; chronic heart disease; chronic kidney disease (excluding maintenance dialysis and nephrotic syndrome); chronic liver disease; chronic lung disease (including moderate persistent or severe persistent asthma); cochlear implant; or diabetes mellitus:

Age 2–5 years

- Any incomplete* PCV series with:
  - 3 PCV doses: 1 dose PCV (at least 8 weeks after the most recent PCV dose)
  - Less than 3 PCV doses: 2 doses PCV (at least 8 weeks after the most recent dose and administered at least 8 weeks apart)
- Completed recommended PCV series but have not received PPSV23.
  - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
  - Not previously received PCV20: administer 1 dose PCV20 or 1 dose PPSV23 administer at least 8 weeks after the most recent PCV dose.

Age 6–18 years

- Not previously received any dose of PCV13, PCV15, or PCV20: administer 1 dose of PCV15 or PCV20. If PCV15 is used and no previous receipt of PPSV23, administer 1 dose of PPSV23 at least 8 weeks after the PCV15 dose.**
- Received PCV before age 6 years but have not received PPSV23
  - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
  - Not previously received PCV20: 1 dose PCV20 or 1 dose PPSV23 administer at least 8 weeks after the most recent PCV dose.
- Received PCV13 only at or after age 6 years: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose.
- Received 1 dose PCV13 and 1 dose PPSV23 at or after age 6 years: no further doses of any PCV or PPSV23 indicated.

Children and adolescents on maintenance dialysis, or with immunocompromising conditions such as nephrotic syndrome; congenital or acquired asplenia or splenic dysfunction; congenital or acquired immunodeficiencies; diseases and conditions treated with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, Hodgkin disease, and solid organ transplant; HIV infection; or sickle cell disease or other hemoglobinopathies:

Age 2–5 years

- Any incomplete* PCV series:
  - 3 PCV doses: 1 dose PCV (at least 8 weeks after the most recent PCV dose)
  - Less than 3 PCV doses: 2 doses PCV (at least 8 weeks after the most recent dose and administered at least 8 weeks apart)
- Completed recommended PCV series but have not received PPSV23
  - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
  - Not previously received PCV20: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV dose. If PPSV23 is used, administer 1 dose of PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.

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Pneumococcal vaccination - *continued*

Age 6–18 years

- Not previously received any dose of PCV13, PCV15, or PCV20: administer 1 dose of PCV15 or 1 dose of PCV20. If PCV15 is used and no previous receipt of PPSV23, administer 1 dose of PPSV23 at least 8 weeks after the PCV15 dose.**
- Received PCV before age 6 years but have not received PPSV23
  - Previously received at least 1 dose of PCV20: no additional dose of PCV or PPSV23
  - Not previously received PCV20: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV dose. If PPSV23 is used, administer either PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.
- Received PCV13 only at or after age 6 years: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose. If PPSV23 is used, administer 1 dose of PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.
- Received 1 dose PCV13 and 1 dose PPSV23 at or after age 6 years: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose and at least 5 years after dose 1 PPSV23.

Pregnancy: no recommendation for PCV or PPSV23 due to limited data. Summary of existing data on pneumococcal vaccination during pregnancy can be found at www.cdc.gov/mmwr/volumes/72/rr/rr7203a1.htm

For guidance on determining which pneumococcal vaccines a patient needs and when, please refer to the mobile app, which can be downloaded here: www.cdc.gov/pneumococcal/hcp/vaccine-recommendations/app.html

**Incomplete series* = Not having received all doses in either the recommended series or an age-appropriate catch-up series. See Table 2 in ACIP pneumococcal recommendations at stacks.cdc.gov/view/cdc/133252

***When both PCV15 and PPSV23 are indicated, administer all doses of PCV15 first. PCV15 and PPSV23 should not be administered during the same visit.*

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Poliovirus vaccination (minimum age: 6 weeks)

Routine vaccination

- 4-dose series at ages 2, 4, 6–18 months, 4–6 years; administer the final dose on or after age 4 years and at least 6 months after the previous dose.
- 4 or more doses of IPV can be administered before age 4 years when a combination vaccine containing IPV is used. However, a dose is still recommended on or after age 4 years and at least 6 months after the previous dose.

Catch-up vaccination

- In the first 6 months of life, use minimum ages and intervals only for travel to a polio-endemic region or during an outbreak.
- **Adolescents age 18 years known or suspected to be unvaccinated or incompletely vaccinated:** administer remaining doses (1, 2, or 3 IPV doses) to complete a 3-dose primary series.* Unless there are specific reasons to believe they were not vaccinated, most persons aged 18 years or older born and raised in the United States can assume they were vaccinated against polio as children.

Series containing oral poliovirus vaccine (OPV), either mixed OPV-IPV or OPV-only series:

- Total number of doses needed to complete the series is the same as that recommended for the U.S. IPV schedule. See www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm.
- Only trivalent OPV (tOPV) counts toward the U.S. vaccination requirements.
  - Doses of OPV administered before April 1, 2016, should be counted (unless specifically noted as administered during a campaign).
  - Doses of OPV administered on or after April 1, 2016, should not be counted.
  - For guidance to assess doses documented as "OPV," see www.cdc.gov/mmwr/volumes/66/wr/mm6606a7.htm.
- For other catch-up guidance, see Table 2.

Special situations

- **Adolescents aged 18 years at increased risk of exposure to poliovirus and completed primary series*:** may administer one lifetime IPV booster

***Note:** Complete primary series consist of at least 3 doses of IPV or trivalent oral poliovirus vaccine (tOPV) in any combination.

For detailed information, see: www.cdc.gov/polio/hcp/vaccine-considerations/index.html

Respiratory syncytial virus immunization (minimum age: birth [Nirsevimab, RSV-mAb, Beyfortus])

Routine immunization

- **Infants born October – March in most of the continental United States***
  - Mother did not receive RSV vaccine or mother's RSV vaccination status is unknown or mother received RSV vaccine in previous pregnancy: administer 1 dose nirsevimab within 1 week of birth—ideally during the birth hospitalization.
  - Mother received RSV vaccine **less than 14 days** prior to delivery: administer 1 dose nirsevimab within 1 week of birth—ideally during the birth hospitalization.
  - Mother received RSV vaccine **at least 14 days** prior to delivery: nirsevimab not needed but can be considered in rare circumstances at the discretion of healthcare providers (see www.cdc.gov/rsv/hcp/vaccine-clinical-guidance/infants-young-children.html)
- **Infants born April–September in most of the continental United States***
  - Mother did not receive RSV vaccine or mother's RSV vaccination status is unknown or mother received RSV vaccine in previous pregnancy: administer 1 dose nirsevimab shortly before start of RSV season.*
  - Mother received RSV vaccine **less than 14 days** prior to delivery: administer 1 dose nirsevimab shortly before start of RSV season.*
  - Mother received RSV vaccine **at least 14 days** prior to delivery: nirsevimab not needed but can be considered in rare circumstances at the discretion of healthcare providers (see www.cdc.gov/rsv/hcp/vaccine-clinical-guidance/infants-young-children.html)

Infants with prolonged birth hospitalization** (e.g., for prematurity) discharged October through March should be immunized shortly before or promptly after discharge.

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Special situations

- **Ages 8–19 months with chronic lung disease of prematurity requiring medical support (e.g., chronic corticosteroid therapy, diuretic therapy, or supplemental oxygen) any time during the 6-month period before the start of the second RSV season; severe immunocompromise; cystic fibrosis with either weight for length <10th percentile or manifestation of severe lung disease (e.g., previous hospitalization for pulmonary exacerbation in the first year of life or abnormalities on chest imaging that persist when stable)**:**
  - 1 dose nirsevimab shortly before start of second RSV season*
- **Ages 8–19 months who are American Indian or Alaska Native:** 1 dose nirsevimab shortly before start of second RSV season*
- **Age-eligible and undergoing cardiac surgery with cardiopulmonary bypass**:** 1 additional dose of nirsevimab after surgery. See www.accessdata.fda.gov/drugsatfda_docs/label/2023/761328s000lbl.pdf

***Note:** While the timing of the onset and duration of RSV season may vary, administration of nirsevimab is recommended October through March in most of the continental United States (optimally October through November or within 1 week of birth). Providers in jurisdictions with RSV seasonality that differs from most of the continental United States (e.g., Alaska, jurisdiction with tropical climate) should follow guidance from public health authorities (e.g., CDC, health departments) or regional medical centers on timing of administration based on local RSV seasonality.

****Note:** Nirsevimab can be administered to children who are eligible to receive palivizumab. Children who have received nirsevimab should not receive palivizumab for the same RSV season.

For further guidance, see www.cdc.gov/mmwr/volumes/72/wr/mm7234a4.htm and www.cdc.gov/rsv/hcp/vaccine-clinical-guidance/infants-young-children.html

Respiratory syncytial virus vaccination (RSV [Abrysvo])

Routine vaccination

- **Pregnant at 32 weeks 0 days through 36 weeks and 6 days gestation from September through January in most of the continental United States*:** 1 dose Abrysvo. Administer RSV vaccine regardless of previous RSV infection.
  - Either maternal RSV vaccination with Abrysvo or infant immunization with nirsevimab (RSV monoclonal antibody) is recommended to prevent severe respiratory syncytial virus disease in infants.
- **All other pregnant women:** RSV vaccine not recommended
- **Subsequent pregnancies:** additional doses not recommended. No data are available to inform whether additional doses are needed in subsequent pregnancies. Infants born to pregnant women who received RSV vaccine during a previous pregnancy should receive nirsevimab.

***Note:** Providers in jurisdictions with RSV seasonality that differs from most of the continental United States (e.g., Alaska, jurisdictions with tropical climate) should follow guidance from public health authorities (e.g., CDC, health departments) or regional medical centers on timing of administration based on local RSV seasonality.

Rotavirus vaccination (minimum age: 6 weeks)

Routine vaccination

- **Rotarix:** 2-dose series at age 2 and 4 months
- **RotaTeq:** 3-dose series at age 2, 4, and 6 months
- If any dose in the series is either **RotaTeq** or unknown, default to 3-dose series.

Catch-up vaccination

- Do not start the series on or after age 15 weeks, 0 days.
- The maximum age for the final dose is 8 months, 0 days.
- For other catch-up guidance, see Table 2.

Tetanus, diphtheria, and pertussis (Tdap) vaccination (minimum age: 11 years for routine vaccination, 7 years for catch-up vaccination)

Routine vaccination

- **Age 11–12 years:** 1 dose Tdap (adolescent booster)
- **Pregnancy:** 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36

Note: Tdap may be administered regardless of the interval since the last tetanus- and diphtheria-toxoid-containing vaccine.

Catch-up vaccination

- **Age 13–18 years who have not received Tdap:** 1 dose Tdap (adolescent booster)
- **Age 7–18 years not fully vaccinated* with DTaP:** 1 dose Tdap as part of the catch-up series (preferably the first dose); if additional doses are needed, use Td or Tdap.
- **Tdap administered at age 7–10 years:**
  - **Age 7–9 years** who receive Tdap should receive the adolescent Tdap booster dose at age 11–12 years
  - **Age 10 years** who receive Tdap do not need the adolescent Tdap booster dose at age 11–12 years
- **DTaP inadvertently administered on or after age 7 years**:
  - **Age 7–9 years**: DTaP may count as part of catch-up series. Administer adolescent Tdap booster dose at age 11–12 years.
  - **Age 10–18 years**: Count dose of DTaP as the adolescent Tdap booster dose.
- For other catch-up guidance, see Table 2.

Special situations

- **Wound management** in persons age 7 years or older with history of 3 or more doses of tetanus-toxoid-containing vaccine: For clean and minor wounds, administer Tdap or Td if more than 10 years since last dose of tetanus-toxoid-containing vaccine; for all other wounds, administer Tdap or Td if more than 5 years since last dose of tetanus-toxoid-containing vaccine. Tdap is preferred for persons age 11 years or older who have not previously received Tdap or whose Tdap history is unknown. If a tetanus-toxoid-containing vaccine is indicated for a pregnant adolescent, use Tdap.
- For detailed information, see www.cdc.gov/mmwr/volumes/69/wr/mm6903a5.htm.

**Fully vaccinated* = 5 valid doses of DTaP or 4 valid doses of DTaP if dose 4 was administered at age 4 years or older

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Varicella vaccination
(minimum age: 12 months)

Routine vaccination

- 2-dose series at age 12–15 months, 4–6 years
- VAR or MMRV may be administered*
- Dose 2 may be administered as early as 3 months after dose 1 (a dose inadvertently administered after at least 4 weeks may be counted as valid).

*__Note__: For dose 1 in children age 12–47 months, it is recommended to administer MMR and varicella vaccines separately. MMRV may be used if parents or caregivers express a preference.

Catch-up vaccination

- Ensure persons age 7–18 years without evidence of immunity (see *MMWR* at www.cdc.gov/mmwr/pdf/rr/rr5604.pdf) have a 2-dose series:
  - **Age 7–12 years**: Routine interval: 3 months (a dose inadvertently administered after at least 4 weeks may be counted as valid)
  - **Age 13 years and older**: Routine interval: 4–8 weeks (minimum interval: 4 weeks)
  - The maximum age for use of *MMRV* is 12 years.

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Appendix Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2025

Guide to Contraindications and Precautions to Commonly Used Vaccines

Adapted from Table 4-1 in Advisory Committee on Immunization Practices (ACIP) General Best Practice Guidelines for Immunization: Contraindication and Precautions, Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices—United States, 2024–25 Influenza Season | MMWR (cdc.gov), *and* Contraindications and Precautions for COVID-19 Vaccination

Vaccines and other Immunizing Agents	Contraindicated or Not Recommended[1]	Precautions[2]
COVID-19 mRNA vaccines [Pfizer-BioNTech, Moderna]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of an mRNA COVID-19 vaccine[3]	• Diagnosed non-severe allergy (e.g., urticaria beyond the injection site) to a component of an mRNA COVID-19 vaccine[3]; or non-severe, immediate (onset less than 4 hours) allergic reaction after administration of a previous dose of an mRNA COVID-19 vaccine • Myocarditis or pericarditis within 3 weeks after a dose of any COVID-19 vaccine • Multisystem inflammatory syndrome in children (MIS-C) or multisystem inflammatory syndrome in adults (MIS-A) • Moderate or severe acute illness, with or without fever
COVID-19 protein subunit vaccine [Novavax]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of a Novavax COVID-19 vaccine[3]	• Diagnosed non-severe allergy (e.g., urticaria beyond the injection site) to a component of Novavax COVID-19 vaccine[3]; or non-severe, immediate (onset less than 4 hours) allergic reaction after administration of a previous dose of a Novavax COVID-19 vaccine • Myocarditis or pericarditis within 3 weeks after a dose of any COVID-19 vaccine • Multisystem inflammatory syndrome in children (MIS-C) or multisystem inflammatory syndrome in adults (MIS-A) • Moderate or severe acute illness, with or without fever
Influenza, egg-based, inactivated injectable (IIV3)	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[4] (excluding egg)	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Moderate or severe acute illness with or without fever
Influenza, cell culture-based inactivated injectable (ccIIV3) [Flucelvax]	• Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component[4] of ccIIV3	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, RIV, or LAIV of any valency. If using ccIIV3, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, recombinant injectable (RIV3) [Flublok]	• Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component[4] of RIV3	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, ccIIV, or LAIV of any valency. If using RIV3, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, live attenuated (LAIV3) [Flumist]	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[4] (excluding egg) • Children age 2–4 years with a history of asthma or wheezing • Anatomic or functional asplenia • Immunocompromised due to any cause including, but not limited to, medications and HIV infection • Close contacts or caregivers of severely immunosuppressed persons who require a protected environment • Pregnancy • Cochlear implant • Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear or any other cranial CSF leak • Children and adolescents receiving aspirin or salicylate-containing medications • Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Asthma in persons age 5 years old or older • Persons with underlying medical conditions other than those listed under contraindications that might predispose to complications after wild-type influenza virus infection, e.g., chronic pulmonary, cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus) • Moderate or severe acute illness with or without fever

1. When a contraindication is present, a vaccine should **NOT** be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization.
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization.
3. See package inserts and FDA EUA fact sheets for a full list of vaccine ingredients. mRNA COVID-19 vaccines contain polyethylene glycol (PEG).
4. Vaccination providers should check FDA-approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. See Package inserts for U.S.-licensed vaccines.

Appendix Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2025

Vaccines and other Immunizing Agents	Contraindicated or Not Recommended[1]	Precautions[2]
Dengue (DEN4CYD)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) • Lack of laboratory confirmation of a previous dengue infection	• Pregnancy • HIV infection without evidence of severe immunosuppression • Moderate or severe acute illness with or without fever
Diphtheria, tetanus, pertussis (DTaP)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) not attributable to another identifiable cause within 7 days of administration of previous dose of DTP or DTaP	• Guillain-Barré syndrome (GBS) within 6 weeks after previous dose of tetanus-toxoid–containing vaccine • History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid-containing vaccine • For DTaP only: Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status clarified and stabilized • Moderate or severe acute illness with or without fever
Haemophilus influenzae type b (Hib)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Younger than age 6 weeks	• Moderate or severe acute illness with or without fever
Hepatitis A (HepA)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including neomycin	• Moderate or severe acute illness with or without fever
Hepatitis B (HepB)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including yeast • Pregnancy: PreHevbrio is not recommended due to lack of safety data in pregnant women. Use other hepatitis B vaccines if HepB is indicated[4]	• Moderate or severe acute illness with or without fever
Hepatitis A-Hepatitis B vaccine (HepA-HepB) [Twinrix]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including neomycin and yeast	• Moderate or severe acute illness with or without fever
Human papillomavirus (HPV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • *Pregnancy: HPV vaccination not recommended.*	• Moderate or severe acute illness with or without fever
Measles, mumps, rubella (MMR) Measles, mumps, rubella, and varicella (MMRV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) • Pregnancy • Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent • For MMRV only: HIV infection of any severity	• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product) • History of thrombocytopenia or thrombocytopenic purpura • Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing • Moderate or severe acute illness with or without fever • For MMRV only: Personal or family (i.e., sibling or parent) history of seizures of any etiology • If using MMRV, see Varicella/MMRV for additional precautions
Meningococcal ACWY (MenACWY) (MenACWY-CRM) [Menveo] (MenACWY-TT) [MenQuadfi]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • For Men ACWY-CRM only: severe allergic reaction to any diphtheria toxoid— or CRM197—containing vaccine • For MenACWY-TT only: severe allergic reaction to a tetanus toxoid-containing vaccine	• For MenACWY-CRM only: Preterm birth if younger than age 9 months • Moderate or severe acute illness with or without fever
Meningococcal B (MenB) MenB-4C [Bexsero] MenB-FHbp [Trumenba]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Pregnancy • For MenB-4C only: Latex sensitivity • Moderate or severe acute illness with or without fever
Meningococcal ABCWY (MenACWY-TT/MenB-FHbp) [Penbraya]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe allergic reaction to a tetanus toxoid-containing vaccine	• Moderate or severe acute illness, with or without fever
Mpox [Jynneos]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness, with or without fever
Pneumococcal conjugate (PCV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe allergic reaction (e.g., anaphylaxis) to any diphtheria-toxoid-containing vaccine or its component[3]	• Moderate or severe acute illness with or without fever
Pneumococcal polysaccharide (PPSV23)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever
Poliovirus vaccine, inactivated (IPV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Pregnancy • Moderate or severe acute illness with or without fever
RSV monoclonal antibody (RSV-mAb)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[5]	• Moderate or severe acute illness with or without fever
Respiratory syncytial virus vaccine (RSV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever
Rotavirus (RV) RV1 [Rotarix] RV5 [RotaTeq]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe combined immunodeficiency (SCID) • History of intussusception	• Altered immunocompetence other than SCID • Chronic gastrointestinal disease • RV1 only: Spina bifida or bladder exstrophy • Moderate or severe acute illness with or without fever
Tetanus, diphtheria, and acellular pertussis (Tdap) Tetanus, diphtheria (Td)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • For Tdap only: Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) not attributable to another identifiable cause within 7 days of administration of previous dose of DTP, DTaP, or Tdap	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus-toxoid–containing vaccine • History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid–containing vaccine • For Tdap only: Progressive or unstable neurological disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized • Moderate or severe acute illness with or without fever
Varicella (VAR) Measles, mumps, rubella, and varicella (MMRV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) • Pregnancy • Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent • For MMRV only: HIV infection of any severity	• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product) • Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination) • Use of aspirin or aspirin-containing products • Moderate or severe acute illness with or without fever • If using MMRV, see MMR/MMRV for additional precautions

1. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/imz-best-practices/contraindications-precautions.html.
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/imz-best-practices/contraindications-precautions.html.
3. Vaccination providers should check FDA-approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at www.fda.gov/vaccines-blood-biologics/approved-products/vaccines-licensed-use-united-states.
4. For information on the pregnancy exposure registry for persons who were inadvertently vaccinated with PreHevbrio while pregnant, please visit www.prehevbrio.com/#safety.
5. Full prescribing information for BEYFORTUS (nirsevimab-alip) www.accessdata.fda.gov/drugsatfda_docs/label/2023/761328s000lbl.pdf.

Addendum

Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2025

In addition to the recommendations presented in the previous sections of this immunization schedule, CDC has approved the following ACIP recommendations since October 24, 2024.

Vaccines	Recommendations	Effective Date of Recommendation†
Meningococcal (MenACWY-CRM/MenB-4C, Penmenvy)	ACIP recommends GSK's MenABCWY vaccine may be used when both MenACWY and MenB are indicated at the same visit* *(1) healthy persons aged 16–23 years (routine schedule) when shared clinical decision-making favors administration of MenB vaccine and (2) persons aged ≥10 years who are at increased risk for meningococcal disease (e.g., because of persistent complement deficiencies, complement inhibitor use, or functional or anatomic asplenia).	June 25, 2025

Note: As of May 29, 2025, the schedule incorporates the HHS directive regarding COVID-19 vaccine recommendations. (Changes were made to tables and notes for COVID-19 vaccines in pregnant women and children/adolescents ages 6 months through 17 years who are not moderately or severely immunocompromised.)

†The effective date is the date when the recommendation was adopted and became official.

Recommended Adult Immunization Schedule
for ages 19 years or older

UNITED STATES
2025

Vaccines in the Adult Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
COVID–19 vaccine	1vCOV–mRNA	Comirnaty/Pfizer–BioNTech COVID–19 Vaccine Spikevax/Moderna COVID–19 Vaccine
	1vCOV–aPS	Novavax COVID–19 Vaccine
Haemophilus influenzae type b vaccine	Hib	ActHIB, Hiberix, PedvaxHIB
Hepatitis A vaccine	HepA	Havrix, Vaqta
Hepatitis A and hepatitis B vaccine	HepA–HepB	Twinrix
Hepatitis B vaccine	HepB	Engerix–B, Heplisav–B, PreHevbrio, Recombivax HB
Human papillomavirus vaccine	HPV	Gardasil 9
Influenza vaccine (inactivated, egg-based)	IIV3	Multiple
	aIIV3	Fluad
	HD–IIV3	Fluzone High–Dose
Influenza vaccine (inactivated, cell–culture)	ccIIV3	Flucelvax
Influenza vaccine (recombinant)	RIV3	Flublok
Influenza vaccine (live, attenuated)	LAIV3	FluMist
Measles, mumps, and rubella vaccine	MMR	M–M–R II, Priorix
Meningococcal serogroups A, C, W, Y vaccine	MenACWY–CRM	Menveo
	MenACWY–TT	MenQuadfi
Meningococcal serogroup B vaccine	MenB–4C	Bexsero
	MenB–FHbp	Trumenba
Meningococcal serogroup A, B, C, W, Y vaccine	MenACWY–TT/ MenB–FHbp	Penbraya
Mpox vaccine	Mpox	Jynneos
Pneumococcal conjugate vaccine	PCV15	Vaxneuvance
	PCV20	Prevnar 20
	PCV21	Capvaxive
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23
Poliovirus vaccine (inactivated)	IPV	Ipol
Respiratory syncytial virus vaccine	RSV	Abrysvo, Arexvy, mResvia
Tetanus and diphtheria vaccine	Td	Tenivac
Tetanus, diphtheria, and acellular pertussis vaccine	Tdap	Adacel, Boostrix
Varicella vaccine	VAR	Varivax
Zoster vaccine, recombinant	RZV	Shingrix

*Administer recommended vaccines if vaccination history is incomplete or unknown.
Do not restart or add doses to vaccine series if there are extended intervals between doses.
The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

Revised 07/02/2025 (as amended on April 27, 2026 to add the ACIP's April 2025 RSV recommendation as adopted by HHS)

How to use the adult immunization schedule

1 Determine recommended vaccinations by age **(Table 1)**

2 Assess need for additional recommended vaccinations by medical condition or other indication **(Table 2)**

3 Review vaccine types, dosing frequencies and intervals, and considerations for special situations **(Notes)**

4 Review contraindications and precautions for vaccine types **(Appendix)**

Report

- Suspected cases of reportable vaccine–preventable diseases or outbreaks to the local or state health department
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System at www.vaers.hhs.gov or 800-822-7967

Questions or comments

Contact www.cdc.gov/cdc–info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays.

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/hcp/imz-schedules/app.html.

Helpful information

- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/acip-recs/hcp/vaccine-specific/
- ACIP Shared Clinical Decision–Making Recommendations: www.cdc.gov/acip/vaccine-recommendations/shared-clinical-decision-making.html
- *General Best Practice Guidelines for Immunization* www.cdc.gov/vaccines/hcp/imz-best-practices/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/current-vis/index.html
- Manual for the Surveillance of Vaccine–Preventable Diseases (including case identification and outbreak response): www.cdc.gov/surv-manual/php/index.html

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Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2025

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
COVID–19	1 or more doses of 2024–2025 vaccine (See Notes)			2 or more doses of 2024-2025 vaccine (See Notes)
Influenza inactivated (IIV3, ccIIV3) **Influenza recombinant** (RIV3)	1 dose annually			1 dose annually (HD–IIV3, RIV3, or aIIV3 preferred)
Influenza inactivated (aIIV3; HD–IIV3) **Influenza recombinant** (RIV3)	Solid organ transplant (See Notes)			
Influenza live, attenuated (LAIV3)	1 dose annually			
Respiratory syncytial virus (RSV)	Seasonal administration during pregnancy (See Notes)		50 through 74 years (See Notes)	≥75 years
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (See Notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			For health care personnel (See Notes)
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (See Notes)		2 doses	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal (PCV15, PCV20, PCV21, PPSV23)			See Notes	
				See Notes
Hepatitis A (HepA)	2, 3, or 4 doses depending on vaccine			
Hepatitis B (HepB)	2, 3, or 4 doses depending on vaccine or condition			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication (See Notes for booster recommendations)			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication (See Notes for booster recommendations)			
	19 through 23 years			
***Haemophilus influenzae* type b** (Hib)	1 or 3 doses depending on indication			
Mpox	2 doses			
Inactivated poliovirus (IPV)	Complete 3-dose series if incompletely vaccinated. Self–report of previous doses acceptable (See Notes)			

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of immunity

Recommended vaccination for adults with an additional risk factor or another indication

Recommended vaccination based on shared clinical decision–making

No Guidance/ Not Applicable

Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2025

Always use this table in conjunction with Table 1 and the Notes that follow. Medical conditions or indications are often not mutually exclusive. If multiple medical conditions or indications are present, refer to guidance in all relevant columns. See Notes for medical conditions or indications not listed.

VACCINE	Pregnancy	Immunocompromised (excluding HIV infection)	HIV infection CD4 percentage and count		Men who have sex with men	Asplenia, complement deficiency	Heart or lung disease	Kidney failure, End–stage renal disease or on dialysis	Chronic liver disease; alcoholism[a]	Diabetes	Health care Personnel[b]
			<15% or <200/mm³	≥15% and ≥200/mm³							
COVID–19		See Notes									
Influenza inactivated Influenza recombinant		Solid organ transplant (See Notes)	1 dose annually								
LAIV3					1 dose annually if age 19–49 years		1 dose annually if age 19–49 years				
RSV	Seasonal administration (See Notes)	See Notes				See Notes			Liver disease (See Notes)	See Notes	
Tdap or Td	Tdap: 1 dose each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	*										
VAR	*			See Notes							
RZV		See Notes									
HPV	*	3-dose series if indicated									
Pneumococcal											
HepA											
Hep B	See Notes									Age ≥ 60 years	
MenACWY											
MenB											
Hib		HSCT: 3 doses[c]				Asplenia: 1 dose					
Mpox	See Notes				See Notes						See Notes
IPV		Complete 3-dose series if incompletely vaccinated. Self–report of previous doses acceptable (See Notes)									

- Recommended for all adults who lack documentation of vaccination, **OR** lack evidence of immunity
- Not recommended for all adults, but recommended for some adults based on either age **OR** increased risk for or severe outcomes from disease
- Recommended based on shared clinical decision–making
- Recommended for all adults, and additional doses may be necessary based on medical condition or other indications. See Notes.
- Precaution: Might be indicated if benefit of protection outweighs risk of adverse reaction
- Contraindicated or not recommended *Vaccinate after pregnancy, if indicated
- No Guidance/ Not Applicable

a. Precaution for LAIV3 does not apply to alcoholism.

b. See Notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations.

c. Hematopoietic stem cell transplant.

Notes

For vaccination recommendations for persons ages 18 years or younger, see the Recommended Child and Adolescent Immunization Schedule, 2025: www.cdc.gov/vaccines/hcp/imz-schedules/child-adolescent-age.html

Additional Information

- For calculating intervals between doses, 4 weeks = 28 days. Intervals of ≥4 months are determined by calendar months.
- Within a number range (e.g., 12–18), a dash (–) should be read as "through."
- Vaccine doses administered ≤4 days before the minimum age or interval are considered valid. Doses of any vaccine administered ≥5 days earlier than the minimum age or minimum interval should not be counted as valid and should be repeated. **The repeat dose should be spaced after the invalid dose by the recommended minimum interval.** For further details, see Table 3–2, Recommended and minimum ages and intervals between vaccine doses, in *General Best Practice Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/imz-best-practices/timing-spacing-immunobiologics.html.
- Information on travel vaccination requirements and recommendations is available at www.cdc.gov/travel/.
- For vaccination of persons with immunodeficiencies, see Table 8–1, Vaccination of persons with primary and secondary immunodeficiencies, in *General Best Practice Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/imz-best-practices/altered-immunocompetence.html.
- For information about vaccination in the setting of a vaccine–preventable disease outbreak, contact your state or local health department.
- The National Vaccine Injury Compensation Program (VICP) is a no–fault alternative to the traditional legal system for resolving vaccine injury claims. All vaccines included in the adult immunization schedule except PPSV23, RSV, RZV, Mpox, and COVID–19 vaccines are covered by the National Vaccine Injury Compensation Program (VICP). Mpox and COVID–19 vaccines are covered by the Countermeasures Injury Compensation Program (CICP). For more information, see www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cicp.

COVID–19 vaccination

Routine vaccination

Age 19–64 years (not pregnant)

- **Unvaccinated:**
  - 1 dose 2024–25 Moderna or Pfizer-BioNTech
  - 2 doses 2024–25 Novavax at 0, 3–8 weeks
- **Previously vaccinated before 2024–25 vaccine with:**
  - **1 or more doses Moderna or Pfizer-BioNTech:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech at least 8 weeks after the most recent dose.
  - **1 dose Novavax:** 1 dose 2024–25 Novavax 3–8 weeks after most recent dose. If more than 8 weeks after most recent dose, administer 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech.
  - **2 or more doses Novavax:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech at least 8 weeks after the most recent dose.
  - **1 or more doses Janssen:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech.

Age 65 years and older

- **Unvaccinated:** follow recommendations above for unvaccinated persons ages 19–64 years **and** administer dose 2 of 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months).
- **Previously vaccinated before 2024–25 vaccine:** follow recommendations above for previously vaccinated persons ages 19–64 years **and** administer dose 2 of 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months).

Special situations

Persons who are moderately or severely immunocompromised. Use vaccine from the same manufacturer for all doses in the initial vaccination series.

- **Unvaccinated:**
  - 4 doses (**3-dose initial series 2024–25 Moderna** at 0, 4 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses.*
  - 4 doses (**3-dose initial series 2024–25 Pfizer-BioNTech** at 0, 3 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses.*
  - 3 doses (**2-dose initial series 2024–25 Novavax** at 0, 3 weeks, followed by 1 dose Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses.*
- **Incomplete initial vaccination series before 2024–25 vaccine:**
  - **Previous vaccination with Moderna**
    - **1 dose Moderna:** complete initial series with 2 doses 2024–25 Moderna at least 4 weeks apart (administer dose 1 4 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*
    - **2 doses Moderna:** complete initial series with 1 dose 2024–25 Moderna at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*

COVID-19 vaccination - *continued*

- **Previous vaccination with Pfizer-BioNTech**
  - **1 dose Pfizer-BioNTech:** complete initial series with 2 doses 2024–25 Pfizer-BioNTech at least 4 weeks apart (administer dose 1 3 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*
  - **2 doses Pfizer-BioNTech:** complete initial series with 1 dose 2024–25 Pfizer-BioNTech at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*
- **Previous vaccination with Novavax**
  - **1 dose Novavax:** complete initial series with 1 dose 2024–25 Novavax at least 3 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*

- **Completed the initial vaccination series before 2024–25 vaccine with:**
  - **3 or more doses Moderna or 3 or more doses Pfizer-BioNTech:** 2 doses 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses.*
  - **2 or more doses Novavax:** 2 doses 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses.*

***Additional doses of 2024–25 COVID-19 vaccine for moderately or severely immunocompromised:** based on shared clinical decision-making and administered at least 2 months after the most recent dose (see Table 2 at www.cdc.gov/covid/hcp/vaccine-considerations/immunocompromised.html#heading-afhenymeej). For description of moderate and severe immunocompromising conditions and treatment, see www.cdc.gov/covid/hcp/vaccine-considerations/immunocompromised.html#heading-ijufqampvj.

Unvaccinated persons have never received any COVID-19 vaccine doses. There is no preferential recommendation for the use of one COVID-19 vaccine over another when more than one recommended age-appropriate vaccine is available. Administer an age-appropriate COVID-19 vaccine product for each dose.

For information about interchangeability of COVID-19 vaccines, see www.cdc.gov/covid/hcp/vaccine-considerations/implementation.html#cdc_clinical_guidance_prevent_key-interchangeability-of-covid-19-vaccines.

Current COVID-19 schedule and dosage formulation available at www.cdc.gov/covid/hcp/vaccine-considerations/index.html. For more information on Emergency Use Authorization (EUA) indications for COVID-19 vaccines, see www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines.

Haemophilus influenzae type b vaccination

Special situations

- **Anatomical or functional asplenia (including sickle cell disease):** 1 dose if previously did not receive Hib vaccine
  - **Elective splenectomy:** 1 dose preferably at least 14 days before splenectomy
- **Hematopoietic stem cell transplant (HSCT):** 3-dose series 4 weeks apart starting 6–12 months after successful transplant, regardless of Hib vaccination history

Hepatitis A vaccination

Routine vaccination

- **Any person who is not fully vaccinated and requests vaccination** (identification of risk factor not required): complete 2-dose series HepA (Havrix 6–12 months apart or Vaqta 6–18 months apart [minimum interval: 6 months]) or 3-dose series HepA–HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2 = 4 weeks; dose 2 to dose 3 = 5 months])

Special situations

- **Any person who is not fully vaccinated and who is at risk for hepatitis A virus infection or severe disease from hepatitis A virus infection:** complete 2-dose series HepA or 3-dose series HepA–HepB as above. Risk factors include:
  - **Chronic liver disease** including persons with hepatitis B, hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase (ALT) or aspartate aminotransferase (AST) level greater than twice the upper limit of normal.
  - **HIV infection**
  - **Men who have sex with men**
  - **Injection or noninjection drug use**
  - **Persons experiencing homelessness**
  - **Work with hepatitis A virus** in research laboratory or with nonhuman primates with hepatitis A virus infection
  - **Travel in countries with high or intermediate endemic hepatitis A:** HepA–HepB (Twinrix) may be administered on an accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months.
  - **Close, personal contact with international adoptee** (e.g., household or regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A: dose 1 as soon as adoption is planned; preferably at least 2 weeks before adoptee's arrival.

Hepatitis A vaccination - *continued*

- **Pregnancy** if at risk for infection or severe outcome from infection during pregnancy
- **Settings for exposure,** including health care setting serving persons who use injection or noninjection drugs, or group homes and nonresidential day care facilities for developmentally disabled persons (individual risk factor screening not required)

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Hepatitis B vaccination

Routine vaccination

- **Age 19 through 59 years:** complete a 2- or 3- or 4-dose series
  - 2-dose series only applies when 2 doses of Heplisav–B are used at least 4 weeks apart
  - 3-dose series Engerix–B, PreHevbrio*, or Recombivax HB at 0, 1, 6 months (minimum intervals: dose 1 to dose 2 = 4 weeks; dose 2 to dose 3 = 8 weeks; dose 1 to dose 3 = 16 weeks)
  - 3-dose series HepA–HepB (Twinrix) at 0, 1, 6 months (minimum intervals: dose 1 to dose 2 = 4 weeks; dose 2 to dose 3 = 5 months)
  - 4-dose series HepA–HepB (Twinrix) accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months

***Note:** PreHevbrio is not recommended in pregnancy due to lack of safety data in pregnant women.

- **Age 60 years or older without** known risk factors for hepatitis B virus infection **may** receive a HepB vaccine series.
- **Age 60 years or older with** known risk factors for hepatitis B virus infection **should** receive a HepB vaccine series.
- **Any adult age 60 years of age or older** who requests HepB vaccination **should** receive a HepB vaccine series.
  - **Risk factors for hepatitis B virus infection include:**
    - **Chronic liver disease** including persons with hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase (ALT) or aspartate aminotransferase (AST) level greater than twice the upper limit of normal.
    - **HIV infection**
    - **Sexual exposure risk** e.g., sex partners of hepatitis B surface antigen (HBsAg)–positive persons, sexually active persons not in mutually monogamous relationships, persons seeking evaluation or treatment for a sexually transmitted infection, men who have sex with men
    - **Current or recent injection drug use**
    - **Percutaneous or mucosal risk for exposure to blood** e.g., household contacts of HBsAg–positive persons, residents and staff of facilities for developmentally disabled persons, health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood–contaminated body fluids, persons on maintenance dialysis (including in–center or home hemodialysis and peritoneal dialysis), persons who are predialysis, and patients with diabetes**
    - **Incarceration**
    - **Travel in countries with high or intermediate endemic hepatitis B**

****Age 60 years or older with diabetes:** Based on shared clinical decision making, 2-, 3-, or 4-dose series as above.

Special situations

- **Patients on dialysis:** complete a 3- or 4-dose series
  - 3-dose series Recombivax HB at 0, 1, 6 months (Note: Use Dialysis Formulation 1 mL = 40 mcg)
  - 4-dose series Engerix–B at 0, 1, 2, and 6 months (Note: Use 2 mL dose instead of the normal adult dose of 1 mL)
- **Age 20 years or older with an immunocompromising condition:** complete a 2- or 3- or 4-dose series.
  - 3-dose series Recombivax HB at 0,1, 6 months (Note: Use Dialysis Formulation 1ml = 40 mcg)
  - 4-dose series Engerix–B at 0,1,2, and 6 months (Note: Use 2mL dose instead of the normal adult dose of 1mL)
  - 2-doses series Heplisav–B at 0, 1 months
  - 3-dose series PreHevbrio* at 0,1, 6 months

Human papillomavirus vaccination

Routine vaccination

- **All persons through age 26 years:** complete 2– or 3-dose series depending on age at initial vaccination or condition.
  - **Age 9–14 years at initial vaccination and received 1 dose or 2 doses less than 5 months apart:** 1 additional dose
  - **Age 9–14 years at initial vaccination and received 2 doses at least 5 months apart:** HPV vaccination series complete, no additional dose needed
  - **Age 15 years or older at initial vaccination:** 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2 = 4 weeks; dose 2 to dose 3 = 12 weeks; dose 1 to dose 3 = 5 months; repeat dose if administered too soon)
- No additional dose recommended when any HPV vaccine series of any valency has been completed using the recommended dosing intervals.

Shared clinical decision–making

- **Adults age 27–45 years:** Based on shared clinical decision–making, complete a 2-dose series (if initiated age 9–14 years) or 3-dose series (if initiated ≥15 years).

For additional information on shared clinical decision–making for HPV; see www.cdc.gov/vaccines/hcp/admin/downloads/isd–job–aid–scdm–hpv–shared–clinical–decision–making–hpv.pdf

Special situations

- **Age ranges recommended above for routine and catch–up vaccination or shared clinical decision–making also apply in special situations**
  - **Immunocompromising conditions, including HIV infection**: complete 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
  - **Pregnancy**: Pregnancy testing is not needed before vaccination. HPV vaccination is not recommended until after pregnancy. No intervention needed if inadvertently vaccinated while pregnant.

Influenza vaccination

Routine vaccination

- **Age 19 years or older:** 1 dose any influenza vaccine appropriate for age and health status annually
  - **Solid organ transplant recipients aged 19 through 64 years receiving immunosuppressive medications:** HD–IIV3 and aIIV3 are acceptable options. No preference over other age–appropriate IIV3 or RIV3.
  - **Age 65 years or older:** Any one of HD-IIV3, RIV3, or aIIV3 is preferred. If none of these three vaccines is available, then any other age–appropriate influenza vaccine should be used.
- For the 2024–25 season, see www.cdc.gov/mmwr/volumes/73/rr/rr7305a1.htm
- For the 2025–26 season, see the 2025–26 ACIP influenza vaccine recommendations.

Special situations

- **Close contacts (e.g., caregivers, healthcare workers) of severely immunosuppressed persons who require a protected environment:** should not receive LAIV3. If LAIV3 is given, they should avoid contact with/caring for such immunosuppressed persons for 7 days after vaccination.

Note: Persons with an egg allergy can receive any influenza vaccine (egg-based or non–egg based) appropriate for age and health status.

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Measles, mumps, and rubella vaccination

Routine vaccination

- **No evidence of immunity to measles, mumps, or rubella:** 1 dose
  - **Evidence of immunity:** Born before 1957 (except for health care personnel, see below), documentation of receipt of MMR vaccine, laboratory evidence of immunity or disease (diagnosis of disease without laboratory confirmation is not evidence of immunity)

Special situations

- **Pregnancy with no evidence of immunity to rubella:** MMR contraindicated during pregnancy; after pregnancy (before discharge from health care facility): 1 dose
- **Nonpregnant women of childbearing age with no evidence of immunity to rubella:** 1 dose
- **HIV infection with CD4 percentages ≥15% and CD4 count ≥200 cells/mm³ for at least 6 months and no evidence of immunity to measles, mumps, or rubella:** complete 2-dose series at least 4 weeks apart; MMR contraindicated for HIV infection with CD4 percentage <15% or CD4 count <200 cells/mm³
- **Severe immunocompromising conditions:** MMR contraindicated
- **Students in postsecondary educational institutions, international travelers, and household or close, personal contacts of immunocompromised persons with no evidence of immunity to measles, mumps, or rubella:** complete 2-dose series at least 4 weeks apart if previously did not receive any doses of MMR or 1 dose if previously received 1 dose MMR
- **In mumps outbreak settings,** for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a7.htm

Measles, mumps, and rubella vaccination *- continued*

- **Health care personnel:**
  - **Born before 1957 with no evidence of immunity to measles, mumps, or rubella:** Consider 2-dose series at least 4 weeks apart for protection against measles or mumps or 1 dose for protection against rubella.
  - **Born in 1957 or later with no evidence of immunity to measles, mumps, or rubella:** complete 2-dose series at least 4 weeks apart for protection against measles or mumps or at least 1 dose for protection against rubella.

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Meningococcal vaccination

Special situations for MenACWY

- **Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:** 2-dose primary series Menveo or MenQuadfi at least 8 weeks apart; 1 booster dose 5 years after primary series and every 5 years if risk remains
- **Travel in countries with hyperendemic or epidemic meningococcal disease, or for microbiologists routinely exposed to *Neisseria meningitidis*:** 1 dose Menveo or MenQuadfi; 1 booster dose 5 years after primary series and every 5 years if risk remains
- **First–year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:** 1 dose Menveo or MenQuadfi

Note: MenACWY vaccines may be administered simultaneously with MenB vaccines if indicated, but at a different anatomic site, if feasible.

For MenACWY recommendations **in outbreak setting** (e.g., in community or organizational settings, or among men who have sex with men) and **additional meningococcal vaccination** information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm

Shared clinical decision–making for MenB

- **Adolescents and young adults age 16–23 years (age 16–18 years preferred)* not at increased risk for meningococcal disease:** based on shared clinical decision–making
  - **Bexsero or Trumenba (use same brand for all doses):** 2-dose series at least 6 months apart (if dose 2 is administered earlier than 6 months, administer dose 3 at least 4 months after dose 2)

*To optimize rapid protection (e.g., for students starting college in less than 6 months), a 3-dose series (0, 1–2, 6 months) may be administered.

For additional information on shared clinical decision–making for MenB, see www.cdc.gov/vaccines/media/pdfs/2025/03/2024-isd-job-aid-scdm-menb-508-remediated.pdf

Special situations for MenB

- **Anatomical or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use, or microbiologists routinely exposed to *Neisseria meningitidis*.**
  - **Bexsero or Trumenba (use same brand for all doses including booster doses):** 3-dose primary series at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed; if dose 3 is administered earlier than 4 months after dose 2, a 4th dose should be administered at least 4 months after dose 3).
  - **Booster doses:** 1 booster dose one year after primary series and every 2–3 years if risk remains
- **Pregnancy:** Delay MenB until after pregnancy due to lack of safety data in pregnant women. May administer if at increased risk and vaccination benefits outweigh potential risks.

For MenB recommendations **in outbreak setting** (e.g., in community or organizational settings, or among men who have sex with men) and **additional meningococcal vaccination** information, see ww.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Note: MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.

Adults may receive a single dose of Penbraya (MenACWY–TT/MenB–FHbp) as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day. For adults not at increased risk, if Penbraya is used for dose 1 MenB, then MenB–FHbp (Trumenba) should be administered for dose 2 MenB. For adults at increased risk of meningococcal disease, Penbraya may be used for additional MenACWY and MenB doses (including booster doses) if both would be given on the same clinic day **and** at least 6 months have elapsed since most recent Penbraya dose.

Mpox vaccination

Special situations

- **Any person at risk for mpox infection:** complete 2-dose series, 28 days apart.

  Risk factors for mpox infection include:
  - Persons who are gay or bisexual, and other MSM, transgender or nonbinary people who in the past 6 months have had:
    - A new diagnosis of at least 1 sexually transmitted disease
    - More than 1 sex partner
    - Sex at a commercial sex venue
    - Sex in association with a large public event in a geographic area where mpox transmission is occurring
  - Persons who are sexual partners of the persons described above
  - Persons who anticipate experiencing any of the situations described above
- **Pregnancy:** There is currently no ACIP recommendation for Jynneos use in pregnancy due to lack of safety data in pregnant women. Pregnant women with any risk factor described above may receive Jynneos.
- **Health care personnel:** Vaccination to protect against occupational risk in healthcare settings is not routinely recommended.

  For detailed information, see www.cdc.gov/monkeypox/hcp/vaccine-considerations/.

Pneumococcal vaccination

Routine vaccination

- **Age 50 years or older who have:**
  - **Not previously received a dose of PCV13, PCV15, PCV20, or PCV21 or whose previous vaccination history is unknown:** 1 dose PCV15 or 1 dose PCV20 or 1 dose PCV21
    - If PCV15 is used, administer 1 dose PPSV23 at least 1 year after the PCV15 dose (may use minimum interval of 8 weeks for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak).
  - **Previously received only PCV7:** follow the recommendation above.
  - **Previously received only PCV13:** 1 dose PCV20 or 1 dose PCV21 at least 1 year after the last PCV13 dose
  - **Previously received only PPSV23:** 1 dose PCV15 or 1 dose PCV20 or 1 dose PCV21, at least 1 year after the last PPSV23 dose.
    - If PCV15 is used, no additional PPSV23 doses are recommended.
  - **Previously received both PCV13 and PPSV23 but NO PPSV23 was received at age 65 years or older:** 1 dose PCV20 or 1 dose PCV21 at least 5 years after the last pneumococcal vaccine dose.
  - **Previously received both PCV13 and PPSV23, AND PPSV23 was received at age 65 years or older:** Based on shared clinical decision–making, 1 dose of PCV20 or 1 dose of PCV21 at least 5 years after the last pneumococcal vaccine dose.

Special situations

- **Age 19–49 years with certain underlying medical conditions or other risk factors** who have:**
  - **Not previously received a PCV13, PCV15, PCV20, or PCV21 or whose previous vaccination history is unknown:** 1 dose PCV15 or 1 dose PCV20 or 1 dose PCV21
    - If PCV15 is used, administer 1 dose PPSV23 at least 1 year after the PCV15 dose (may use minimum interval of 8 weeks for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak).
  - **Previously received only PCV7:** follow the recommendation above.
  - **Previously received only PCV13:** 1 dose PCV20 or 1 dose PCV21 at least 1 year after the last PCV13 dose
  - **Previously received only PPSV23:** 1 dose PCV15 or 1 dose PCV20 or 1 dose PCV21, at least 1 year after the last PPSV23 dose.
    - If PCV15 is used, no additional PPSV23 doses are recommended.
  - **Previously received PCV13 and 1 dose of PPSV23:**
    - Cochlear implant, cerebrospinal fluid leak, or an immunocompromising condition*: 1 dose PCV20 or 1 dose PCV21 at least 5 years after the last pneumococcal vaccine dose.
    - Alcoholism, chronic heart/liver/lung disease, cigarette smoking, or diabetes mellitus: no additional PCV or PPSV23 doses recommended at this time. Review pneumococcal recommendations when age 50 years or older.

Adults aged 19 years and older who have received PCV20 or PCV21: no additional pneumococcal vaccine dose recommended.

Pregnancy: no recommendation for PCV or PPSV23 due to limited data. Summary of existing data on pneumococcal vaccination during pregnancy can be found at www.cdc.gov/mmwr/volumes/72/rr/rr7203a1.htm.

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Pneumococcal vaccination - *continued*

PPSV23 not available: adults aged 19 years or older who received PCV15 but have not yet completed PPSV23 series, can complete the series with either 1 dose of PCV20 or 1 dose of PCV21 if they no longer have access to PPSV23.

For guidance on determining which pneumococcal vaccines a patient needs and when, please refer to the mobile app which can be downloaded here: www.cdc.gov/pneumococcal/hcp/vaccine-recommendations/app.html.

***Note:** Immunocompromising conditions include chronic renal failure, nephrotic syndrome, immunodeficiencies, iatrogenic immunosuppression, generalized malignancy, HIV infection, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplant, congenital or acquired asplenia, or sickle cell disease or other hemoglobinopathies.

****Note:** Underlying medical conditions or other risk factors include alcoholism, chronic heart/liver/lung disease, chronic renal failure, cigarette smoking, cochlear implant, congenital or acquired asplenia, CSF leak, diabetes mellitus, generalized malignancy, HIV infection, Hodgkin disease, immunodeficiencies, iatrogenic immunosuppression, leukemia, lymphoma, multiple myeloma, nephrotic syndrome, solid organ transplant, or sickle cell disease or other hemoglobinopathies.

Poliovirus vaccination

Routine vaccination

- **Adults known or suspected to be unvaccinated or incompletely vaccinated:** administer remaining doses (1, 2, or 3 IPV doses) to complete a 3-dose primary series.* Unless there are specific reasons to believe they were not vaccinated, most adults who were born and raised in the United States can assume they were vaccinated against polio as children.

Special situations

- **Adults at increased risk for exposure to poliovirus who completed primary series*:** may administer one lifetime IPV booster.

***Note:** Complete primary series consists of at least 3 doses of IPV or trivalent oral poliovirus vaccine (tOPV) in any combination.

For detailed information, see www.cdc.gov/polio/hcp/vaccine-considerations/index.html

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Respiratory syncytial virus vaccination

Routine vaccination

- **Pregnant women of any age:**
  - **Pregnant at 32 weeks 0 days through 36 weeks and 6 days gestation from September through January in most of the continental United States*:** 1 dose **Abrysvo**. Administer RSV vaccine regardless of previous RSV infection.
  - Either maternal RSV vaccination with Abrysvo or infant immunization with nirsevimab (RSV monoclonal antibody) is recommended to prevent severe respiratory syncytial virus disease in infants.
  - **All other pregnant women:** RSV vaccine not recommended
  - **Subsequent pregnancies:** additional doses not recommended. No data are available to inform whether additional doses are needed in subsequent pregnancies. Infants born to pregnant women who received RSV vaccine during a previous pregnancy should receive nirsevimab.

***Note:** Providers in jurisdictions with RSV seasonality that differs from most of the continental United States (e.g., Alaska, jurisdictions with tropical climate) should follow guidance from public health authorities on timing of administration. Refer to the 2025 Child and Adolescent Immunization Schedule for considerations regarding nirsevimab administration to infants.

Age 75 years or older

- **Unvaccinated:** 1 dose (Arexvy or Abrysvo or mResvia). Additional doses not recommended
- **Previously vaccinated:** additional doses not recommended. No data are available to inform whether additional doses are needed.

Respiratory syncytial virus vaccination - *continued*

Special situations

- **Age 50–74 years:**
  - **Unvaccinated and at increased risk of severe RSV disease**:** 1 dose (Arexvy or Abrysvo or mResvia). Additional doses not recommended.
  - **Previously vaccinated:** additional doses not recommended. No data are available to inform whether additional doses are needed.

Persons 50 years and older can get RSV vaccine at any time but it is best to administer in late summer and early fall before RSV spreads in communities—ideally August through October in most of continental United States. For further guidance, see www.cdc.gov/mmwr/volumes/73/wr/mm7332e1.htm.

****Note: *People can self–attest to the presence of a risk factor.* The following medical and other conditions increase the risk of severe RSV disease:**

- Chronic cardiovascular disease e.g., heart failure, coronary artery disease, congenital heart disease. Excludes isolated hypertension.
- Chronic lung or respiratory disease e.g., chronic obstructive pulmonary disease, emphysema, asthma, interstitial lung disease, cystic fibrosis
- End stage renal disease or dependence on hemodialysis or other renal replacement therapy
- Diabetes mellitus complicated by chronic kidney disease, neuropathy, retinopathy, or other end–organ damage
- Diabetes mellitus requiring treatment with insulin or sodium–glucose cotransporter 2 (SGLT2) inhibitor
- Neurologic or neuromuscular conditions causing impaired airway clearance or respiratory muscle weakness e.g., post–stroke dysphagia, amyotrophic lateral sclerosis, muscular dystrophy. Excludes history of stroke without impaired airway clearance.
- Chronic liver disease e.g., cirrhosis
- Chronic hematologic conditions e.g., sickle cell disease, thalassemia
- Severe obesity (body mass index ≥ 40 kg/m2)
- Moderate or severe immune compromise
- Residence in a nursing home
- Other chronic medical conditions or risk factors that a health care provider determines would increase the risk of severe disease due to viral respiratory infection e.g., frailty, concern for presence of undiagnosed chronic medical conditions, residence in a remote or rural community where escalation of medical care is challenging.

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Tetanus, diphtheria, and pertussis vaccination

Routine vaccination

- **Completed primary series and received at least 1 dose Tdap at age 10 years or older:** Td or Tdap every 10 years thereafter
- **Completed primary series and did NOT receive Tdap at age 10 years or older:** 1 dose Tdap, then Td or Tdap every 10 years thereafter
- **Unvaccinated or incomplete primary vaccination series for tetanus, diphtheria, or pertussis:** administer remaining doses (1, 2, or 3 doses) to complete 3-dose primary series. 1 dose Tdap followed by 1 dose Td or Tdap at least 4 weeks later, and a third dose of Td or Tdap 6–12 months later (Tdap is preferred as first dose and can be substituted for any Td dose), then Td or Tdap every 10 years thereafter.

Special situations

- **Pregnancy:** 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36
- **Wound management:** Persons with 3 or more doses of tetanus–toxoid–containing vaccine: For clean and minor wounds, administer Tdap or Td if more than 10 years since last dose of tetanus–toxoid–containing vaccine; for all other wounds, administer Tdap or Td if more than 5 years since last dose of tetanus–toxoid–containing vaccine. Tdap is preferred for persons who have not previously received Tdap or whose Tdap history is unknown. If a tetanus–toxoid–containing vaccine is indicated for a pregnant woman, use Tdap. For detailed information, see www.cdc.gov/mmwr/volumes/69/wr/mm6903a5.htm

Varicella vaccination

Routine vaccination

- **No evidence of immunity to varicella:** 2-dose series 4–8 weeks apart if previously did not receive varicella–containing vaccine (VAR or MMRV [measles–mumps–rubella–varicella vaccine] for children); if previously received 1 dose varicella–containing vaccine, 1 dose at least 4 weeks after first dose.
  - **Evidence of immunity:** U.S.–born before 1980 (except for pregnant women and health care personnel [see below]), documentation of 2 doses varicella–containing vaccine at least 4 weeks apart, diagnosis or verification of history of varicella or herpes zoster by a health care provider, laboratory evidence of immunity or disease.

Special situations

- **Pregnancy with no evidence of immunity to varicella:** VAR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose if previously received 1 dose varicella–containing vaccine or dose 1 of 2-dose series (dose 2: 4–8 weeks later) if previously did not receive any varicella–containing vaccine, regardless of whether U.S.–born before 1980.
- **Health care personnel with no evidence of immunity to varicella:** 1 dose if previously received 1 dose varicella–containing vaccine; 2-dose series 4–8 weeks apart if previously did not receive any varicella–containing vaccine, regardless of whether U.S.–born before 1980.
- **HIV infection with CD4 percentages ≥15% and CD4 count ≥200 cells/mm^3 with no evidence of immunity:** Vaccination may be considered (2 doses 3 months apart); VAR contraindicated for HIV infection with CD4 percentage <15% or CD4 count <200 cells/mm^3.
- **Severe immunocompromising conditions:** VAR contraindicated

Zoster vaccination

Routine vaccination

- **Age 50 years or older*:** 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon), regardless of previous herpes zoster or history of zoster vaccine live (ZVL, Zostavax) vaccination.

***Note:** Serologic evidence of prior varicella is not necessary for zoster vaccination. However, if serologic evidence of varicella susceptibility becomes available, providers should follow ACIP guidelines for varicella vaccination first. RZV is not indicated for the prevention of varicella, and there are limited data on the use of RZV in persons without a history of varicella or varicella vaccination.

Special situations

- **Pregnancy:** There is currently no ACIP recommendation for RZV use in pregnancy. Consider delaying RZV until after pregnancy.
- **Immunocompromising conditions (including persons with HIV regardless of CD4 count)**:** 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon). For detailed information, see www.cdc.gov/shingles/hcp/vaccine–considerations/immunocompromised–adults.html

****Note:** If there is no documented history of varicella, varicella vaccination, or herpes zoster, providers should refer to the clinical considerations for use of RZV in immunocompromised adults aged ≥19 years and the ACIP varicella vaccine recommendations for further guidance: www.cdc.gov/mmwr/volumes/71/wr/mm7103a2.htm

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Appendix Recommended Adult Immunization Schedule for Ages 19 Years or Older, United States, 2025

Contraindications and Precautions to Commonly Used Vaccines

Adapted from Table 4–1 in Advisory Committee on Immunization Practices (ACIP) General Best Practice Guidelines for Immunization: Contraindication and Precautions, Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices—United States, 2024–25 Influenza Season | MMWR (cdc.gov), *and* Contraindications and Precautions for COVID–19 Vaccination

Vaccines and Other Immunizing Agents	Contraindicated or Not Recommended[1]	Precautions[2]
COVID–19 mRNA vaccines [Pfizer–BioNTech, Moderna]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of an mRNA COVID–19 vaccine[3]	• Diagnosed non–severe allergy (e.g., urticaria beyond the injection site) to a component of an mRNA COVID–19 vaccine[3]; or non–severe, immediate (onset less than 4 hours) allergic reaction after administration of a previous dose of an mRNA COVID–19 vaccine • Myocarditis or pericarditis within 3 weeks after a dose of any COVID–19 vaccine • Multisystem inflammatory syndrome in children (MIS–C) or multisystem inflammatory syndrome in adults (MIS–A) • Moderate or severe acute illness, with or without fever
COVID–19 protein subunit vaccine [Novavax]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of a Novavax COVID–19 vaccine[3]	• Diagnosed non–severe allergy (e.g., urticaria beyond the injection site) to a component of Novavax COVID–19 vaccine[3]; or non–severe, immediate (onset less than 4 hours) allergic reaction after administration of a previous dose of a Novavax COVID–19 vaccine • Myocarditis or pericarditis within 3 weeks after a dose of any COVID–19 vaccine • Multisystem inflammatory syndrome in children (MIS–C) or multisystem inflammatory syndrome in adults (MIS–A) • Moderate or severe acute illness, with or without fever
Influenza, egg-based, inactivated injectable (IIV3)	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[4] (excluding egg)	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Moderate or severe acute illness with or without fever
Influenza, cell culture–based inactivated injectable (ccIIV3) [Flucelvax]	• Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component[4] of ccIIV3	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, RIV, or LAIV of any valency. If using ccIIV3, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, recombinant injectable (RIV3) [Flublok]	• Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component[4] of RIV3	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, ccIIV, or LAIV of any valency. If using RIV3, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, live attenuated (LAIV3) [Flumist]	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[4] (excluding egg) • Anatomic or functional asplenia • Immunocompromised due to any cause including, but not limited to, medications and HIV infection • Close contacts or caregivers of severely immunosuppressed persons who require a protected environment • Pregnancy • Cochlear implant • Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear, or any other cranial CSF leak • Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days.	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Asthma in persons aged 5 years or older • Persons with underlying medical conditions (other than those listed under contraindications) that might predispose to complications after wild–type influenza virus infection [e.g., chronic pulmonary, cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus)] • Moderate or severe acute illness with or without fever

1. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization.
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization.
3. See package inserts and FDA EUA fact sheets for a full list of vaccine ingredients. mRNA COVID–19 vaccines contain polyethylene glycol (PEG).
4. Vaccination providers should check FDA–approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. See Package inserts for U.S.–licensed vaccines.

Appendix Recommended Adult Immunization Schedule for Ages 19 Years or Older, United States, 2025

Vaccine	Contraindicated or Not Recommended[1]	Precautions[2]
Haemophilus influenzae type b (Hib)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever
Hepatitis A (HepA)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including neomycin	• Moderate or severe acute illness with or without fever
Hepatitis B (HepB)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including yeast • Pregnancy: PreHevbrio is not recommended due to lack of safety data in pregnant women. Use other hepatitis B vaccines if HepB is indicated[4]	• Moderate or severe acute illness with or without fever
Hepatitis A–Hepatitis B vaccine (HepA–HepB) [Twinrix]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including neomycin and yeast	• Moderate or severe acute illness with or without fever
Human papillomavirus (HPV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • *Pregnancy: HPV vaccination not recommended*	• Moderate or severe acute illness with or without fever
Measles, mumps, rubella (MMR)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long–term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) • Pregnancy • Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent	• Recent (≤11 months) receipt of antibody–containing blood product (specific interval depends on product) • History of thrombocytopenia or thrombocytopenic purpura • Need for tuberculin skin testing or interferon–gamma release assay (IGRA) testing • Moderate or severe acute illness with or without fever
Meningococcal ACWY (MenACWY) (MenACWY–CRM) [Menveo] (MenACWY–TT) [MenQuadfi]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • For MenACWY–CRM only: severe allergic reaction to any diphtheria toxoid– or CRM197–containing vaccine • For MenACWY–TT only: severe allergic reaction to a tetanus toxoid–containing vaccine	• Moderate or severe acute illness with or without fever
Meningococcal B (MenB) MenB–4C [Bexsero] MenB–FHbp [Trumenba]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Pregnancy • For MenB–4C only: Latex sensitivity • Moderate or severe acute illness with or without fever
Meningococcal ABCWY (MenACWY–TT/MenB–FHbp) [Penbraya]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe allergic reaction to a tetanus toxoid–containing vaccine	• Moderate or severe acute illness, with or without fever
Mpox [Jynneos]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness, with or without fever
Pneumococcal conjugate (PCV15, PCV20, PCV21)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe allergic reaction (e.g., anaphylaxis) to any diphtheria–toxoid–containing vaccine or to its vaccine component[3]	• Moderate or severe acute illness with or without fever
Pneumococcal polysaccharide (PPSV23)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever
Poliovirus vaccine, inactivated (IPV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Pregnancy • Moderate or severe acute illness with or without fever
Respiratory syncytial virus vaccine (RSV)	• Severe allergic reaction (e.g., anaphylaxis) to a vaccine component	• Moderate or severe acute illness with or without fever
Tetanus, diphtheria, and acellular pertussis (Tdap) Tetanus, diphtheria (Td)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • For Tdap only: Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP, DTaP, or Tdap	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus–toxoid–containing vaccine • History of Arthus–type hypersensitivity reactions after a previous dose of diphtheria–toxoid containing or tetanus–toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus–toxoid–containing vaccine • Moderate or severe acute illness with or without fever • For Tdap only: Progressive or unstable neurological disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized
Varicella (VAR)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long–term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) • Pregnancy • Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent	• Recent (≤11 months) receipt of antibody–containing blood product (specific interval depends on product) • Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination) • Use of aspirin or aspirin–containing products • Moderate or severe acute illness with or without fever
Zoster recombinant vaccine (RZV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever • Current episode of herpes zoster

1. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/imz-best-practices/contraindications-precautions.html.
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/imz-best-practices/contraindications-precautions.html.
3. Vaccination providers should check FDA–approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. Package inserts for U.S.–licensed vaccines are available at www.fda.gov/vaccines–blood–biologics/approved–products/vaccines–licensed–use–united–states.
4. For information on the pregnancy exposure registry for persons who were inadvertently vaccinated with PreHevbrio while pregnant, please visit www.prehevbrio.com/#safety.

Addendum

Recommended Adult Immunization Schedule for Ages 19 Years or Older, United States, 2025

In addition to the recommendations presented in the previous sections of this immunization schedule, CDC has approved the following ACIP recommendations since October 24, 2024.

Vaccines	Recommendations	Effective Date of Recommendation[†]
Meningococcal (MenACWY-CRM/MenB-4C, Penmenvy)	ACIP recommends GSK's MenABCWY vaccine may be used when both MenACWY and MenB are indicated at the same visit* *(1) healthy persons aged 16–23 years (routine schedule) when shared clinical decision-making favors administration of MenB vaccine and (2) persons aged ≥10 years who are at increased risk for meningococcal disease (e.g., because of persistent complement deficiencies, complement inhibitor use, or functional or anatomic asplenia).	June 25, 2025
RSV (Abrysvo,Arexvy,mResvia)	ACIP recommends adults 50–59 years of age who are at increased risk of severe RSV disease[a] receive a single dose of RSV vaccine.[b,c] a. CDC will publish Clinical Considerations that describe chronic medical conditions and other risk factors for severe RSV disease for use in this risk-based recommendation. b. At this time, RSV vaccination is recommended as a single dose only. Persons who have already received RSV vaccination are NOT recommended to receive another dose. c. RSV vaccine can be administered with any product licensed in this age group.	June 25, 2025

Note: As of May 29, 2025, the schedule incorporates the HHS directive regarding COVID-19 vaccine recommendations. (Changes were made to tables and notes for COVID-19 vaccines in pregnant women.)

[†]The effective date is the date when the recommendation was adopted and became official.

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INFLUENZA – HIGHEST RISK POPULATIONS

The best way to prevent influenza is by getting an influenza vaccination each year. While everyone aged six months or older is recommended to receive influenza vaccination, it is particularly important for people who are at increased risk of complications. Influenza can worsen underlying chronic medical conditions such as chronic obstructive pulmonary disease, asthma, heart failure and diabetes. Antiviral treatment of influenza can reduce risk of some complications, especially when started within 48 hours of symptom onset. Therefore, people in high-risk groups should contact their primary care clinician as soon as respiratory symptoms begin. Who is at highest risk?

Groups at Increased Risk for Influenza Complications
Age Groups • Children younger than five years especially those young than two years • Adults aged 65 years and older
Chronic Medical Conditions • Asthma • Neurologic and neurodevelopmental conditions • Blood disorders (such as sickle cell disease) • Chronic lung disease (such as chronic obstructive pulmonary disease and cystic fibrosis) • Endocrine disorders (such as diabetes) • Heart disease (such as congenital heart disease, congestive heart failure and coronary artery disease) • Kidney disease • Liver disorders • Metabolic disorders (such as inherited metabolic disorders and mitochondrial disorders) • People who are obese with a body mass index of 40 or higher • People younger than 19 years old taking long-term aspirin or salicylate-containing medications • People with weakened immune systems due to disease (such as people with HIV or AIDS, or some cancers such as leukemia) or medications (such as those receiving chemotherapy or radiation treatment for cancer, or persons with chronic conditions requiring long-term corticosteroids or other drugs that suppress the immune system) • People who have had a stroke
Other Groups • Pregnant women and postpartum women up to two weeks after delivery • People who live in nursing homes and other long-term care facilities • Older adults may present with atypical symptoms of influenza infection, including confusion, weakness, decreased appetite, or functional decline

SAMPLE

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Racial and Ethnic Groups

- People from certain racial and ethnic minority groups are at increased risk for hospitalization with influenza, including non-Hispanic Black persons, Hispanic or Latino persons and American Indian or Alaska Native persons

People at Higher Risk of Flu Complications | CDC September 11, 2024
https://www.cdc.gov/flu/highrisk/index.htm

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Influenza Vaccination Consent Form - Staff

Name (Print): _____ Mark One: ___Employee ___Volunteer ___Other

Date of Birth: _____ Department (if applicable): _____

Street Address: _____ County: _____

City: _____ State: _____ Zip: _____

****

___**REQUEST TO RECEIVE:** I request that the vaccine be given to me. I have read or have had explained to me the information on the Vaccine Information Statement (VIS). I have had a chance to ask questions which were answered to my satisfaction. I understand the benefits and risks of the influenza vaccine.

PLEASE ANSWER THE FOLLOWING:

Have you ever had a life-threatening reaction after getting an influenza vaccine? ☐ Yes ☐ No
Do you have a history of Guillain-Barre syndrome? ☐ Yes ☐ No
Do you now have a temperature of 100.4 or greater? ☐ Yes ☐ No

___**DECLINE**: I decline the vaccine at this time. I acknowledge that influenza vaccination is recommended by the Centers for Disease Control and Prevention (CDC) for all healthcare personnel to prevent infection from and transmission of influenza and its complications, including death to patients, coworkers, family and community. I understand I can change my mind and get the vaccine at a later date, if available.

REASON FOR DECLINING:

_____ Severe allergic reaction (anaphylaxis) after a previous vaccine dose or to a vaccine component.
_____ History of Guillain-Barre Syndrome (also called GBS)
_____ I do not want the vaccine for the following reason: _____

___ **ALREADY RECEIVED**: I have already received the vaccination from another facility/provider.

Date Received: _____ Location received: _____

Signature: _____ Date:_____

Parent/Guardian if applicable: _____ Date: _____

****

To be completed by person administering vaccine

Date Vaccinated: _____ Route: IM Deltoid: ☐ Right ☐ Left

Lot Number: _____ Expiration Date: _____ Nurse Signature: _____

Vaccine Information Statement: Inactivated Influenza Vaccine

SAMPLE

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Formulario de consentimiento de vacunación antigripal - Personal

Nombre (imprenta): _____ ___Marcar uno: ___Empleado ___Voluntario ___Otro

Fecha de nacimiento: _____ Departamento (si se aplica): _____

Domicilio, calle: _____ Condado: _____

Ciudad: _____ Estado: _____ Código postal: _____

**********___**SOLICITUD**

PARA LA APLICACIÓN: Solicito que se me aplique la vacuna. He leído o me han explicado la declaración de información sobre vacunas (VIS, por sus siglas en inglés). He tenido la posibilidad de hacer preguntas, que se me respondieron hasta que estuve conforme. Comprendo los beneficios y los riesgos de la vacuna antigripal.

POR FAVOR, RESPONDA LO SIGUIENTE:

¿Alguna vez tuvo una reacción potencialmente mortal después de vacunarse contra la gripe?	☐ Sí	☐ No
¿Tiene antecedentes de síndrome de Guillain-Barré?	☐ Sí	☐ No
¿Tiene una temperatura de 100.4 o superior?	☐ Sí	☐ No

___**RECHAZO**: Rechazo la aplicación de la vacuna en este momento. Sé que la vacunación antigripal está recomendada por los Centros para el Control y la Prevención de Enfermedades (CDC) para todo el personal sanitario para prevenir la infección y la transmisión de la gripe y sus complicaciones, incluida la muerte de los pacientes, los compañeros de trabajo, la familia y la comunidad. Comprendo que puedo cambiar de idea y vacunarme posteriormente, si la vacuna está disponible.

MOTIVO DEL RECHAZO:

_____ Reacción alérgica grave (anafilaxia) después de una dosis previa de la vacuna o a un componente
_____ Antecedentes de síndrome de Guillain-Barré (también llamado GBS)
_____ No deseo recibir la vacuna por el siguiente motivo: _____

___ **YA APLICADA**: Ya he recibido la vacuna en otro centro/con otro proveedor.

Fecha de vacunación: _____ Lugar de vacunación: _____

Firma: _____ Fecha: _____

Padre/madre/tutor si corresponde: _____ Fecha: _____

****

Debe completar esta sección la persona que aplica la vacuna / To be completed by person administering vaccine

Date Vaccinated: _____ Route: IM Deltoid: ☐ Right ☐ Left

Lot Number: _____ Expiration Date: _____ Nurse Signature: _____

Declaración de información sobre vacunas: vacuna inactivada contra la influenza
Vaccine Information Statement: Inactivated Influenza Vaccine

MUESTRA

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Influenza Vaccination Consent Form - Resident

Resident Information

Last Name : _____ First Name: _____ Date of Birth: _____

Room Number: _____

Screening for influenza vaccine eligibility:

Have you ever had a life-threatening reaction after getting an influenza vaccine?	_____ Yes	_____ No
Do you have a history of Guillain-Barre syndrome?	_____ Yes	_____ No
Do you now have a temperature of 100.4 or greater?	_____ Yes	_____ No
Do you feel moderately or severely ill today?	_____ Yes	_____ No

_____**REQUEST TO RECEIVE:** I request that the vaccine be given to me (or the person named above for whom I am authorized to make this request). I have read or have had explained to me the information on the Vaccine Information Statement (VIS). I have had a chance to ask questions which were answered to my satisfaction. I understand the benefits and risks of the influenza vaccine.

_____**DECLINE**: I decline the vaccine at this time for myself (or the person named above for whom I am authorized to make this request). I acknowledge that influenza vaccination is recommended by the Centers for Disease Control and Prevention (CDC) for everyone 6 months and older. Vaccination is particularly important for people who are at high risk of serious complications. I understand I can change my mind and get the vaccine at a later date, if available.

_____ **ALREADY RECEIVED**: I have already received the vaccination from another facility.

Date Received: _____ Location received: _____

SIGNATURE: _____ DATE: _____

Name (print): _____

Relationship to Resident: _____

****

To be completed by person administering vaccine

Date Vaccinated: _____ Route: IM Deltoid: ☐Right ☐Left Lot Number: _____

Expiration date: _____ Nurse Signature: _____

Vaccine Information Statement: Inactivated Influenza Vaccine

SAMPLE

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Formulario de consentimiento de vacunación antigripal - Residente

Información del residente

Apellido: _____ Nombre: _____ Fecha de nacimiento: _____

Número de habitación: _____

Evaluación de elegibilidad para la vacuna antigripal:

¿Alguna vez tuvo una reacción potencialmente mortal después de vacunarse contra la gripe?	_____ Sí	_____ No
¿Tiene antecedentes de síndrome de Guillain-Barré?	_____ Sí	_____ No
¿Tiene una temperatura de 100.4 o superior?	_____ Sí	_____ No
¿Se siente moderada o gravemente enfermo hoy?	_____ Sí	_____ No

_____ **SOLICITUD PARA LA APLICACIÓN:** Solicito que se me aplique la vacuna a mí (o a la persona nombrada antes, en nombre de la cual estoy autorizado a realizar esta solicitud). He leído o me han explicado la declaración de información sobre vacunas (VIS, por sus siglas en inglés). He tenido la posibilidad de hacer preguntas, que se me respondieron hasta que estuve conforme. Comprendo los beneficios y los riesgos de la vacuna antigripal.

_____ **RECHAZO**: Rechazo que se me aplique la vacuna a mí (o a la persona nombrada antes, en nombre de la cual estoy autorizado a realizar esta solicitud). Sé que los Centros para el Control y la Prevención de Enfermedades (CDC) recomiendan la vacuna antigripal a todas las personas de 6 meses de edad en adelante. La vacunación es particularmente importante para las personas que tienen riesgo de complicaciones graves. Comprendo que puedo cambiar de idea y vacunarme posteriormente, si la vacuna está disponible.

_____ **YA APLICADA**: Ya he recibido la vacuna en otro centro.

Fecha de vacunación: _____ Lugar de vacunación: _____

FIRMA: _____ FECHA: _____

Nombre (en imprenta): _____

Relación con el residente: _____

****

Debe completar esta sección la persona que aplica la vacuna / To be completed by person administering vaccine

Date Vaccinated: _____ Route: IM Deltoid: ☐ Right ☐ Left

Lot Number: _____ Expiration Date: _____ Nurse Signature: _____

Declaración de información sobre vacunas: vacuna inactivada contra la influenza
Vaccine Information Statement: Inactivated Influenza Vaccine

MUESTRA

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Influenza Vaccine Medical Exemption Request

Instructions:

- Employee must complete and sign the Requestor Information section.
- For Medical Exemption Request, the employee's physician must complete and sign the Patient Medical Contraindication section.

Requestor Information Section

Name	Position	Department	Request Date

Requestor Acknowledgement Information:

- I understand that Facility requires all healthcare workers (employees, medical staff, volunteers, students, and contract workers) be vaccinated against Influenza, unless granted an exemption.
- Influenza vaccination is recommended for me and all other healthcare workers to protect our residents from Influenza, its complications and risk of death.
- I am likely to be exposed to the viruses through the community and could bring illness into the health care setting.
- If I become infected with Influenza, even when my symptoms are mild or non-existent, I can spread severe illness to others.
- I understand that I cannot get Influenza from the Influenza vaccine.
- I understand that Influenza vaccines are available in injection form.
- The consequences of not being vaccinated could have life-threatening consequences to my health and the health of those with whom I have contact including residents, co-workers, my family and my community.
- I understand all Facility positions and locations have the potential to expose our community to Influenza and therefore, all staff must be vaccinated.
- I recognize Facility requires other vaccinations as a condition of employment including Rubella, Rubeola, Varicella, and TB.
- I understand that if this exemption is granted, I will be required to always wear personal protection equipment (PPE) when I am in the facility. If I do not wear the PPE as required by management, I will be subject to disciplinary action, up to and including, termination.

Requestor Acknowledgement

With knowledge of the above, I am requesting medical exemption from the Influenza vaccination.

SAMPLE

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This policy and procedure is not intended to replace the informed judgment of individual physicians, nurses or other clinicians nor is it intended as a statement of prevailing community standards or minimum standards of practice. It is a suggested method and technique for achieving optimal health care, not a minimum standard below which residents necessarily would be placed at risk.

By my signature below, I acknowledge that:

- I have read and fully understand the information on this form.
- I understand that my request for an exemption may not be granted if it is not reasonable or creates an undue hardship on my employer or is likely to cause harm to residents or staff.
- I understand that any false or incomplete information on this form will result in corrective action up to and including termination of employment for falsification of records.
- I consent to release of this information as determined necessary for Facility to act on/carry out my request.

Print Name	Signature	Date

SAMPLE

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INFLUENZA VACCINE
RELIGIOUS EXEMPTION REQUEST

Instructions:

- Employee must complete and sign the Requestor Information section.

- For Religious Exemption Requests, the employees sincerely held religious beliefs and opposition to the immunization requirements must be identified. A supporting statement from the employee's religious leader will assist in evaluating the exemption request

Requestor Information Section

Name	Position	Department	Request Date

Requestor Acknowledgement Information:

- I understand that Facility requires all healthcare workers (employees, medical staff, volunteers, students, and contract workers) be vaccinated against Influenza, unless granted an exemption.
- Influenza vaccination is recommended for me and all other healthcare workers to protect our residents from Influenza, its complications and risk of death.
- I am likely to be exposed to Influenza through the community and could bring the illness into the health care setting.
- If I become infected with Influenza, even when my symptoms are mild or non-existent, I can spread severe illness to others.
- I understand that I cannot get Influenza from the COVID-19 vaccine.
- I understand that Influenza vaccines are available in injection form.
- The consequences of not being vaccinated could have life-threatening consequences to my health and the health of those with whom I have contact including residents, co-workers, my family and my community.
- I understand all Facility positions and locations have the potential to expose our community to Influenza and therefore, all staff must be vaccinated.
- I recognize Facility requires other vaccinations as a condition of employment including Rubella, Rubeola, Varicella, and TB.
- I understand that if this exemption is granted, I will be required to wear personal protection equipment (PPE) at all times when I am in the facility as required by management. If I do not wear the PPE as required by management, I will be subject to disciplinary action, up to and including, termination.

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Requestor Acknowledgement

With knowledge of the above, I am requesting religious exemption from the Influenza vaccination.

By my signature below, I acknowledge that:

- I have read and fully understand the information on this form.
- I understand that my request for an exemption may not be granted if it is not reasonable or creates an undue hardship on my employer or is likely to cause harm to residents or staff.
- I understand that the Facility reserves the right to discontinue a previously granted accommodation if it is no longer utilized for religious purposes, or if a provided accommodation subsequently poses an undue hardship on the Facility's operations due to changed circumstances.
- I understand that any false or incomplete information on this form will result in corrective action up to and including termination of employment for falsification of records.
- I consent to release of this information as determined necessary for Facility to act on/carry out my request.

Print Name	Signature	Date

SAMPLE

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Religious Doctrine Section

Employee Name _____

Facility requires all employees to have certain immunity as a condition of employment. Employees must be vaccinated against Influenza to work in our organization. The above employee has requested a religious exemption from obtaining our required vaccination. In an effort to respect all religious freedom and accommodate the beliefs of our employees, we are requesting your assistance in better understanding your faith community doctrine as it relates to individual vaccinations. Please assist Facility in confirming your faith community doctrine specifically prohibiting the Influenza vaccination. We are seeking a description of your faith group's written doctrine as well as supporting documentation validating your denomination's doctrinal precepts.

Name of Established Faith Group or Denomination:	
Explain in your own words why you are requesting this religious exemption.	
Describe the religious principles/doctrine that guide your objection to receiving the Influenza vaccine.	

Please attach supporting documentation from your religious tradition's creed or doctrinal statement explicitly prohibiting vaccinations.

Religious Leader Information (*optional to assist in evaluation of request*):

Religious Leader Name: _____ Title: _____
Religious Leader Signature: _____ Date: _____

Reviewer Name: _____

_____ Approved Date of Approval: _____
_____ Denied Date of Denial: _____

State Specifically Reason(s) for Denial

_____
_____
_____
_____

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Fluzone Quadrivalent, Fluzone High-Dose Quadrivalent, Fluzone, Intradermal Quadrivalent, Fluzone Quadrivalent Southern Hemisphere, Fluzone High-Dose Quadrivalent Southern Hemisphere

STN: 103914
Proper Name: Influenza Vaccine
Tradename: Fluzone Quadrivalent, Fluzone High-Dose Quadrivalent, Fluzone, Intradermal Quadrivalent, Fluzone Quadrivalent Southern Hemisphere, Fluzone High-Dose Quadrivalent Southern Hemisphere
Manufacturer: Sanofi Pasteur Inc.
Indication:

- **Fluzone High-Dose Quadrivalent:** A vaccine indicated for active immunization for the prevention of disease caused by influenza A subtype viruses and type B virus contained in the vaccine.
- **Fluzone High-Dose Southern Hemisphere** is a vaccine indicated for active immunization for the prevention of disease caused by influenza A subtype viruses and type B virus contained in the vaccine. Also, it is approved for use in persons 65 years of age and older.
- **Fluzone Southern Hemisphere** is a vaccine indicated for active immunization for the prevention of disease caused by influenza A subtype viruses and type B virus contained in the vaccine. Fluzone High-Dose Southern Hemisphere is a vaccine indicated for active immunization for the prevention of disease caused by influenza A subtype viruses and type B virus contained in the vaccine.
- **Fluzone Intradermal Quadrivalent:** For active immunization of persons 18 through 64 years of age for the prevention of influenza disease caused by influenza A subtype viruses and type B viruses contained in the vaccine.

Feedback

Product Information

- Package Insert - Fluzone (/media/170019/download?attachment)
- Package Insert - Fluzone High-Dose (/media/139731/download?attachment)
- Package Insert and Patient Information - Fluzone High-Dose Southern Hemisphere (/media/165357/download?attachment)
- Package Insert and Patient Information Sheet - Fluzone Southern Hemisphere (/media/120054/download?attachment)
- Package Insert and Patient Information Sheet - Fluzone Quadrivalent (/media/119856/download?attachment)
- Package Insert - Fluzone Intradermal Quadrivalent (/media/90251/download?attachment)

Supporting Documents

- March 23, 2026 Approval Letter - Fluzone and Fluzone Quadrivalent (/media/191668/download?attachment)
- March 23, 2026 Approval Letter - Fluzone Southern Hemisphere (/media/191670/download?attachment)
- February 20, 2026 Approval Letter - Fluzone Southern Hemisphere and Fluzone High-Dose Southern Hemisphere (/media/191267/download?attachment)
- March 6, 2025 Approval Letter - Fluzone and Fluzone High-Dose (/media/185736/download?attachment)

- September 26, 2024 Approval Letter - Fluzone High-Dose Quadrivalent Southern Hemisphere (/media/182285/download?attachment)
- July 1, 2024 Approval Letter- Fluzone and Fluzone High-Dose (/media/179807/download?attachment)
- February 14, 2024 Approval Letter - Fluzone Quadrivalent and Fluzone High-Dose Quadrivalent Southern Hemisphere (/media/176342/download?attachment)
- November 29, 2023 Approval Letter - Fluzone (/media/174294/download?attachment)
- July 12, 2023 Approval Letter - Fluzone Quadrivalent and Fluzone High-Dose (/media/170020/download?attachment)
- February 22, 2023 Approval Letter - Fluzone High Dose Quadrivalent (/media/165616/download?attachment)
- February 13, 2023 Approval Letter - Fluzone Quadrivalent Southern Hemisphere and Fluzone High-Dose Quadrivalent Southern Hemisphere (/media/165384/download?attachment)
- November 2, 2022 Approval Letter - Fluzone Quadrivalent and Fluzone Quadrivalent Southern Hemisphere (/media/162901/download?attachment)
- July 1, 2022 Approval Letter - Fluzone Quadrivalent and Fluzone High-Dose Quadrivalent (/media/159623/download?attachment)
- February 14, 2022 Approval Letter - Fluzone Quadrivalent Southern Hemisphere (/media/156231/download?attachment)
- September 27, 2021 Approval Letter - Fluzone Quadrivalent and Fluzone Quadrivalent Southern Hemisphere (/media/152481/download?attachment)
- July 2, 2021 Approval Letter - Fluzone Quadrivalent and Fluzone High-Dose Quadrivalent (/media/150584/download?attachment)
- February 4, 2021 Approval Letter - Fluzone Quadrivalent Southern Hemisphere (/media/145656/download?attachment)
- July 2, 2020 Approval Letter - Fluzone Quadrivalent and Fluzone High-Dose Quadrivalent (/media/139728/download?attachment)
- April 1, 2020 Approval Letter - Fluzone Quadrivalent (/media/136611/download?attachment)
- February 7, 2020 Approval Letter - Fluzone Quadrivalent Southern Hemisphere (/media/135027/download?attachment)
- November 4, 2019 Approval Letter - Fluzone High-Dose Quadrivalent (/media/132239/download?attachment)
- July 2, 2019 Approval Letter - Fluzone Quadrivalent and Fluzone High-Dose (/media/128577/download?attachment)
- February 4, 2019 Approval Letter - Fluzone Quadrivalent Southern Hemisphere (/media/120053/download?attachment)
  To include the 2019 Southern Hemisphere FluzoneQuadrivalent formulation and associated labeling revisions.
- January 23, 2019 Approval Letter - Fluzone Quadrivalent (/media/119855/download?attachment)
  To include the use of a 0.5 mL single dose presentation of Fluzone Quadrivalent formulation in children 6 to ‹36 months of age.
- January 18, 2019 Summary Basis of Regulatory Action (/media/119854/download?attachment)
- Clinical Review - Fluzone Quadrivalent (/media/119853/download?attachment)
- Statistical Review and Evaluation - Fluzone Quadrivalent (/media/119858/download?attachment)

- June 29, 2018 Approval Letter- Fluzone-Quadrivalent (/media/114405/download?attachment)
  To include the 2018-2019 Northern Hemisphere formulation and associated labeling revisions.
- January 10, 2018 Approval Letter - Fluzone (/media/110589/download?attachment)
  To include the 2018 Southern Hemisphere Formulation and Associated Labeling Revisions.
- February 9, 2017 Approval Letter - Fluzone Southern Hemisphere Formulation (/media/105101/download?attachment)
  To include the 2017 Southern Hemisphere Formulation and Associated Labeling Revisions.
- Supporting Documents older than three years - Fluzone Quadrivalent (http://wayback.archive-it.org/7993/20170722071644/https://www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm356091.htm) (http://www.fda.gov/about-fda/website-policies/website-disclaimer)

Related Information

- Fluzone, Fluzone High-Dose and Fluzone Intradermal (/vaccines-blood-biologics/approved-products/fluzone-fluzone-high-dose-and-fluzone-intradermal)

Was this page helpful? * (required)

Yes

No

Submit

An official form of the United States government. Provided by Touchpoints

Influenza (Flu) Vaccine (Inactivated or Recombinant): *What you need to know*

Many vaccine information statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1. Why get vaccinated?

Influenza vaccine can prevent **influenza (flu)**.

Flu is a contagious disease that spreads around the United States every year, usually between October and May. Anyone can get the flu, but it is more dangerous for some people. Infants and young children, people 65 years and older, pregnant women, and people with certain health conditions or a weakened immune system are at greatest risk of flu complications.

Pneumonia, bronchitis, sinus infections, and ear infections are examples of flu-related complications. If you have a medical condition, such as heart disease, cancer, or diabetes, flu can make it worse.

Flu can cause fever and chills, sore throat, muscle aches, fatigue, cough, headache, and runny or stuffy nose. Some people may have vomiting and diarrhea, though this is more common in children than adults.

In an average year, **thousands of people in the United States die from flu**, and many more are hospitalized. Flu vaccine prevents millions of illnesses and flu-related visits to the doctor each year.

2. Influenza vaccines

CDC recommends everyone 6 months and older get vaccinated every flu season. **Children 6 months through 8 years of age** may need 2 doses during a single flu season. **Everyone else** needs only 1 dose each flu season.

It takes about 2 weeks for protection to develop after vaccination.

There are many flu viruses, and they are always changing. Each year a new flu vaccine is made to protect against the influenza viruses believed to be likely to cause disease in the upcoming flu season.

Even when the vaccine doesn't exactly match these viruses, it may still provide some protection.

Influenza vaccine **does not cause flu**.

Influenza vaccine may be given at the same time as other vaccines.

3. Talk with your health care provider

Tell your vaccination provider if the person getting the vaccine:

- Has had an **allergic reaction after a previous dose of influenza vaccine**, or has any **severe, life-threatening allergies**
- Has ever had **Guillain-Barré Syndrome** (also called "GBS")

In some cases, your health care provider may decide to postpone influenza vaccination until a future visit.

Influenza vaccine can be administered at any time during pregnancy. Women who are or will be pregnant during influenza season should receive inactivated influenza vaccine.

People with minor illnesses, such as a cold, may be vaccinated. People who are moderately or severely ill should usually wait until they recover before getting influenza vaccine.

Your health care provider can give you more information.

U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

4. Risks of a vaccine reaction

- Soreness, redness, and swelling where the shot is given, fever, muscle aches, and headache can happen after influenza vaccination.
- There may be a very small increased risk of Guillain-Barré Syndrome (GBS) after inactivated influenza vaccine (the flu shot).

Young children who get the flu shot along with pneumococcal vaccine (PCV13) and/or DTaP vaccine at the same time might be slightly more likely to have a seizure caused by fever. Tell your health care provider if a child who is getting flu vaccine has ever had a seizure.

People sometimes faint after medical procedures, including vaccination. Tell your provider if you feel dizzy or have vision changes or ringing in the ears.

As with any medicine, there is a very remote chance of a vaccine causing a severe allergic reaction, other serious injury, or death.

5. What if there is a serious problem?

An allergic reaction could occur after the vaccinated person leaves the clinic. If you see signs of a severe allergic reaction (hives, swelling of the face and throat, difficulty breathing, a fast heartbeat, dizziness, or weakness), call **9-1-1** and get the person to the nearest hospital.

For other signs that concern you, call your health care provider.

Adverse reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your health care provider will usually file this report, or you can do it yourself. Visit the VAERS website at www.vaers.hhs.gov or call **1-800-822-7967**. *VAERS is only for reporting reactions, and VAERS staff members do not give medical advice.*

6. The National Vaccine Injury Compensation Program

The National Vaccine Injury Compensation Program (VICP) is a federal program that was created to compensate people who may have been injured by certain vaccines. Claims regarding alleged injury or death due to vaccination have a time limit for filing, which may be as short as two years. Visit the VICP website at www.hrsa.gov/vaccinecompensation or call **1-800-338-2382** to learn about the program and about filing a claim.

7. How can I learn more?

- Ask your health care provider.
- Call your local or state health department.
- Visit the website of the Food and Drug Administration (FDA) for vaccine package inserts and additional information at www.fda.gov/vaccines-blood-biologics/vaccines.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call **1-800-232-4636** (**1-800-CDC-INFO**) or
  - Visit CDC's website at www.cdc.gov/flu.

Morbidity and Mortality Weekly Report (*MMWR*)

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

Weekly / August 28, 2025 / 74(32);500–507

Summary

What is already known about this topic?

Influenza vaccination protects against influenza and its potential complications. The Advisory Committee on Immunization Practices makes influenza vaccination recommendations for each influenza season.

What is added by this report?

Information for the 2025–26 influenza season includes the updated vaccine composition, approval of FluMist (nasal spray live attenuated influenza vaccine) for self-administration or caregiver administration, expansion of the approved age threshold for Flublok (recombinant influenza vaccine) from ≥18 years to ≥9 years, and a recommendation that only single-dose seasonal influenza vaccines not containing thimerosal as a preservative be used.

What are the implications for public health practice?

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

Related Materials

Article PDF

Full Issue PDF

Lisa A. Grohskopf, MD[1]; Lenee H. Blanton, MPH[1]; Jill M. Ferdinands, PhD[1]; Carrie Reed, DSc[1]; Vivien G. Dugan, PhD[1]; Demetre C. Daskalakis, MD[2] (VIEW AUTHOR AFFILIATIONS)

View suggested citation

Abstract

This report updates the 2024–25 recommendations of the Advisory Committee on Immunization Practices (ACIP) concerning the use of seasonal influenza vaccines in the United States. Routine annual influenza vaccination is recommended for all persons aged ≥6 months who do not have a contraindication to vaccination. Multiple formulations of the trivalent inactivated influenza vaccines (IIV3s), trivalent recombinant influenza vaccine (RIV3), and trivalent live attenuated influenza vaccine (LAIV3) are expected to be available for the 2025–26 influenza season. Updates for the 2025–26 season include 1) antigenic composition of 2025–26 U.S. seasonal influenza vaccines, 2) Food and Drug Administration (FDA) approval of FluMist (LAIV3) for self-administration or caregiver administration, 3) FDA approval of a change in age indication for Flublok (RIV3) from ≥18 years to ≥9 years, and 4) a new ACIP recommendation that children aged ≤18 years, pregnant women, and all adults receive seasonal influenza vaccines only in single-dose formulations that are free of thimerosal as a preservative. A comprehensive summary of recommendations, including those discussed in this report, as well as previous recommendations concerning topics not addressed in this report and that remain unchanged for the 2025–26 season, is available at Influenza | ACIP Recommendations for Vaccination. Additional background information also is available at Prevention and Control of Seasonal Influenza with Vaccines.

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Introduction

The Advisory Committee on Immunization Practices (ACIP) provides annual recommendations for the use of influenza vaccines for the prevention and control of seasonal influenza in the United States. This report summarizes updates to the 2024–25 recommendations for use of seasonal influenza vaccines in the United States for the 2025–26 influenza season. As in previous seasons, routine annual influenza vaccination is recommended for all persons aged ≥6 months who do not have a contraindication to vaccination. Various formulations of influenza vaccines are available. Contraindications to and precautions for the use of influenza vaccines are summarized. Updated recommendations discussed in this report reflect discussions held during public ACIP meetings on April 15 and June 26, 2025.

This report describes new and updated recommendations for the 2025–26 season, as well as several topics for which recommendations remain unchanged from the 2024–25 season, including populations for whom influenza vaccination is recommended, timing of vaccination, selection of vaccines, and contraindications and precautions. Previous recommendations concerning topics and specific populations not discussed in this report remain unchanged from the 2024–25 season. Additional information on topics not addressed in this report are available the 2024–25 ACIP seasonal influenza vaccination recommendations (*1*). Recommendations and updates included in this report supersede previous recommendations. In addition, a comprehensive summary of the recommendations for the 2025–26 influenza season, including topics covered and not covered in this report, is available at Influenza | ACIP Recommendations for Vaccination.

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Methods

Influenza Work Group Activities

The ACIP Influenza Work Group meets by teleconference regularly throughout the year to review topics before they are discussed at ACIP meetings. Systematic review and evidence assessment are not performed for changes in the viral antigen composition of seasonal influenza vaccines recommended by the Food and Drug Administration (FDA) and changes that reflect use that is consistent with FDA-approved indications and prescribing information. Systematic review and evaluation of evidence using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach (*2*) are typically performed for new recommendations or substantial changes in current recommendations. Evidence is reviewed by the ACIP Influenza Work Group, and work group considerations are included within the ACIP Evidence to Recommendations (EtR) framework to guide the development of recommendations proposed for a vote by ACIP (*2*,*3*). Because the reaffirmed recommendations for seasonal influenza vaccination had no new recommendations or substantial changes, this recommendation did not require performance of GRADE or EtR. However, GRADE and the EtR framework were used in the development of the previous recommendations mentioned in this report for influenza vaccination of adults aged ≥65 years (*4*,*5*) (June 2022), persons with a history of egg allergy (*6*,*7*) (June 2023), and solid organ transplant recipients aged 18 through 64 years (*8*,*9*) (June 2024). GRADE and EtR were not used to develop the recommendation to avoid seasonal influenza vaccines containing thimerosal as a preservative, and this topic, recommendation, and recommendation language were not discussed by the Influenza Work Group.

Updates to the Influenza Vaccination Recommendations

Four updates to the 2024–25 recommendations are presented in this report. These include three FDA-approved labeling changes and a new recommendation approved through discussion at the June 2025 ACIP meeting.

1. In March 2025, FDA issued recommendations for the antigenic composition of 2025–26 U.S.-approved influenza vaccines (*10*).
2. In September 2024, FDA approved FluMist (LAIV3) for self-administration (for recipients aged 18 through 49 years) or administration by a caregiver aged ≥18 years (for children and adolescents aged 2 through 17 years). FluMist for self-administration or caregiver administration is anticipated to become available during the 2025–26 season (*11*).
3. In March 2025, FDA expanded approval of Flublok (RIV3), previously approved for persons aged ≥18 years, to children and adolescents aged 9 through 17 years. Flublok is now approved for persons aged ≥9 years (*12*).
4. On June 26, 2025, ACIP made a new recommendation that children aged ≤18 years, pregnant women, and all adults receive seasonal influenza vaccines only in single-dose formulations that are free of thimerosal as a preservative.

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Vaccine Composition for the 2025–26 Influenza Season

Based on review of U.S. and global influenza surveillance data (*10*), all influenza vaccines available in the United States during the 2025–26 season will be trivalent vaccines containing hemagglutinin derived from 1) an influenza A/Victoria/4897/2022 (H1N1)pdm09-like virus (for egg-based vaccines) or an influenza A/Wisconsin/67/2022 (H1N1)pdm09-like virus (for cell culture–based and recombinant vaccines); 2) an influenza A/Croatia/10136RV/2023 (H3N2)-like virus (for egg-based vaccines) or an influenza A/District of Columbia/27/2023 (H3N2)-like virus (for cell culture–based and recombinant vaccines); and 3) an influenza B/Austria/1359417/2021 (Victoria lineage)-like virus. This composition reflects an update in the influenza A(H3N2) component compared with that contained in the vaccines during the 2024–25 influenza season (*10*).

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Recommendations for Influenza Vaccination for the 2025–26 Season

Routine annual influenza vaccination of all persons aged ≥6 months who do not have a contraindication to vaccination continues to be recommended. Information on timing, selection, administration, and contraindications and precautions follows.

Timing of Vaccination

For most persons who require only 1 dose of influenza vaccine for the season, vaccination should ideally be offered during September or October. However, vaccination should continue after October and throughout the influenza season as long as influenza viruses are circulating and unexpired vaccine is available.

Vaccination during July and August is not recommended for most groups because of potential waning of vaccine-induced immunity during the influenza season (*13*–*33*), particularly among older adults (*13*,*14*,*16*,*23*,*26*,*32*). However, vaccination during July or August may be considered for any recipient if there is concern that later vaccination might not be possible. Considerations for timing of vaccination follow.

- **Most adults (particularly those aged ≥65 years) and pregnant women in the first or second trimester.** Vaccination during July and August should be avoided unless there is concern that vaccination later in the season might not be possible.
- **Children who require 2 influenza vaccine doses.** Children aged 6 months through 8 years who did not receive ≥2 trivalent or quadrivalent influenza vaccine doses before July 1, 2025, or whose influenza vaccination history is unknown, require 2 doses of influenza vaccine for the season (Supplementary Figure). These children should receive their first dose as early as possible (including during July and August, if vaccine is available) to permit receipt of the second dose (which must be administered ≥4 weeks later), ideally by the end of October.
- **Children who require only 1 influenza vaccine dose.** Vaccination during July and August can be considered for children of any age who need only 1 dose of influenza vaccine for the season. Although waning of immunity after

vaccination during the season has been observed among all age groups (*13–33*), fewer studies report this specifically among children (*13*,*22*,*24*,*25*,*29*,*31*,*32*). Moreover, children in this group might visit health care providers during the late summer months for a medical examination before the start of school, which represents a vaccination opportunity.

- **Pregnant women in the third trimester.** Vaccination during July and August can be considered for women who are in the third trimester of pregnancy during these months because vaccination has been associated in multiple studies with reduced risk for influenza illness in their infants during the first months after birth, when they are too young to receive influenza vaccine (*34–38*). For pregnant women in the first or second trimester during July and August, waiting until September or October to vaccinate is preferable, unless there is concern that later vaccination might not be possible.

Selection of Vaccine

As in past years, various influenza vaccines will be available for the 2025–26 influenza season (Table 1). In addition to contraindications and precautions (Table 2) (Table 3), considerations for vaccine selection include the following recommendations from ACIP:

- Children aged ≤18 years, pregnant women, and all adults should receive seasonal influenza vaccines only in single-dose formulations that are free of thimerosal as a preservative.
- All persons should receive an age-appropriate influenza vaccine (i.e., one that is approved for their age), with the exception that solid organ transplant recipients aged 18 through 64 years who are receiving immunosuppressive medication regimens may receive either trivalent high-dose inactivated influenza vaccine (HD-IIV3) or trivalent adjuvanted inactivated influenza vaccine (aIIV3) as acceptable options (without a preference over other age-appropriate IIV3s or trivalent recombinant influenza vaccine [RIV3]) (*8*,*9*).
- Except for vaccination for adults aged ≥65 years, ACIP makes no preferential recommendation for a specific vaccine when more than one licensed and recommended vaccine is available. Among adults aged ≥65 years any one of the following higher dose or adjuvanted influenza vaccines is preferentially recommended: HD-IIV3, RIV3, or aIIV3. If none of these three vaccines is available at an opportunity for vaccine administration, any other available age-appropriate influenza vaccine should be used (*4*,*5*).
- LAIV3 is not recommended during pregnancy, for immunocompromised persons, for persons with certain medical conditions, or for persons who are receiving, have recently received, or are about to receive influenza antiviral medications (Table 2). LAIV3 should not be administered to persons aged <2 or >49 years.

Number of Doses, Route of Administration, and Dose Volumes

Children aged 6 months through 8 years who have received ≥2 previous doses of trivalent or quadrivalent influenza vaccine ≥4 weeks apart before July 1, 2025, should receive 1 dose of 2025–26 influenza vaccine. The previous 2 doses are not required to have been received during the same or consecutive influenza seasons. Children aged 6 months through 8 years who have not received ≥2 doses of trivalent or quadrivalent influenza vaccine administered ≥4 weeks apart before July 1, 2025, or whose influenza vaccination history is unknown, should receive 2 doses of 2025–26 influenza vaccine ≥4 weeks apart (Supplementary Figure). For children aged 8 years who require 2 doses of vaccine, both doses should be administered even if the child reaches age 9 years between receipt of dose 1 and receipt of dose 2. All persons aged ≥9 years need only 1 dose of a 2025–26 influenza vaccine.

Injectable influenza vaccines (i.e., inactivated and recombinant influenza vaccines) are administered intramuscularly. FDA-approved dose volumes are 0.5 mL for all age groups, with two exceptions (Table 1). The approved dose volume for Afluria (IIV3) is 0.25 mL per dose for children aged 6 through 35 months. The dose volume for children aged ≥3 years and adults is 0.5 mL per dose (*39*). The Afluria 0.5-mL prefilled syringes should not be administered to children aged <3 years, and 0.25-mL prefilled syringes are not available. Because use of multidose seasonal influenza vaccine formulations containing thimerosal as a preservative is no longer recommended, there is currently no ACIP-recommended formulation of Afluria for children aged 6 through 35 months.

The approved dose volume for Fluzone (IIV3) is either 0.25 mL or 0.5 mL per dose for children aged 6 through 35 months. Children aged ≥3 years and adults should receive 0.5 mL per dose (*40*). Although 0.25-mL prefilled syringes are not available, the Fluzone 0.5-mL prefilled syringes can be used for all persons aged ≥6 months. Use of multidose seasonal influenza vaccine formulations containing thimerosal as a preservative is no longer recommended.

Contraindications and Precautions

Each influenza vaccine has a labeled contraindication for persons with a history of a severe allergic reaction (e.g., anaphylaxis) to any component of that vaccine (Table 2) (Table 3) (*11*,*12*,*39*–*45*). Vaccine components are listed in product package inserts. A history of severe allergic reaction (e.g., anaphylaxis) to egg is a labeled contraindication to the use of egg-based IIV3s and LAIV3, which might contain residual egg protein (*11*,*39*–*41*,*43*–*45*). However, ACIP recommends that all persons aged ≥6 months with egg allergy should receive influenza vaccine and that any influenza vaccine (egg based or non–egg based) that is otherwise appropriate for the recipient's age and health status may be used (*6*,*7*). This recommendation was based on a review of evidence from 20 studies (16 of IIVs, one of virosomal influenza vaccine, and three of LAIV) that examined reactions after administration of seasonal influenza vaccines to egg-allergic persons via either full single-dose or split-dose administration protocols (13 of which reported inclusion of persons with a history of severe reaction or anaphylaxis to egg). No instances of anaphylaxis were reported (GRADE certainty level: very low) (*6*). Egg allergy alone necessitates no additional safety measures for influenza vaccination beyond those recommended for any recipient of any vaccine, regardless of severity of previous reaction to egg.

For persons who have had a severe allergic reaction (e.g., anaphylaxis) to a specific influenza vaccine, further receipt of that vaccine is contraindicated. Per package inserts, all egg-based IIV3s and LAIV3 are contraindicated for persons who have had a severe allergic reaction (e.g., anaphylaxis) to any influenza vaccine. Recommendations concerning consideration of non–egg-based influenza vaccines for such persons depends on the type of influenza vaccine associated with the previous severe allergic reaction (Table 2) (Table 3). Providers also might consider consulting with an allergist to help identify the vaccine component responsible for the reaction. Clinical settings in which vaccines are administered should be equipped to recognize and manage acute allergic reactions (*46*).

Moderate or severe acute illness with or without fever is a general precaution for vaccination (*46*). A history of Guillain-Barré syndrome within 6 weeks after receipt of a previous dose of influenza vaccine is considered a precaution for the use of all influenza vaccines (Table 2).

In addition to labeled contraindications for LAIV3 that are listed in the package insert, ACIP also considers several other conditions to be contraindications or precautions to the use of LAIV3 (Table 2). In addition, LAIV3 is not approved for and should not be given to persons aged <2 or >49 years.

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Recent Influenza Vaccine Labeling Changes

FluMist (LAIV3). In September 2024, FDA approved the nasal spray live attenuated influenza vaccine FluMist (LAIV3) for self-administration (for recipients aged 18 through 49 years) or administration by a caregiver aged ≥18 years (for children and adolescents aged 2 through 17 years) (*11*). FluMist for self-administration or caregiver administration is anticipated to become available during the 2025–26 season via the FluMist Home program , through which consumers provide information to determine their eligibility to order the vaccine (*47*). For persons who meet eligibility criteria to receive FluMist, vaccine will be shipped under temperature-controlled conditions to the address provided by the person placing the order. ACIP recommendations, contraindications, and precautions for use of FluMist for self-administration or caregiver administration are the same as those for health care provider administration (Table 2) (Table 3). FluMist will continue to be available for ordering and administration by health care providers.

Flublok (RIV3). In March 2025, FDA expanded approval of Flublok (RIV3), previously approved only for persons aged ≥18 years, to children and adolescents aged 9 through 17 years. The new labeled age indication for Flublok is ≥9 years (*12*). Approval was based on a nonrandomized open-label study comparing immunogenicity and safety of Flublok Quadrivalent (RIV4) among children and adolescents aged 9 through 17 years with immunogenicity and safety in adults aged 18 through 49 years (*12,48*). Flublok Quadrivalent met prespecified criteria for noninferiority of immunogenicity (lower limit of the two-sided 95% CI of the geometric mean titer ratios between age groups of >0.667 and lower limit of the two-sided 95% CI of the difference in seroconversion rates of >–10% at day 29 postvaccination for all four viral components). Among children and adolescents aged 9 through 17 years, the most common adverse reactions (occurring in ≥10% of participants) were injection site pain (34.4%), myalgia (19.3%), headache (18.5%), and malaise (16.1%) (*12*). Flublok is not approved or recommended for children aged <9 years.

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Disclosure of Relationship and Unlabeled Use

All authors have completed and submitted the International Committee of Medical Journal Editors form for the disclosure of potential conflicts of interest. No potential conflicts of interest were disclosed.This report includes discussion of the unlabeled use of influenza vaccines in the recommendations for persons with a history of egg allergy and for solid organ transplant recipients aged 18 through 64 years. With regard to persons with a history of egg allergy, history of severe allergic reaction (e.g., anaphylaxis) to the vaccine or any of its components (which include egg for certain vaccines) is a labeled contraindication to receipt of most trivalent inactivated influenza vaccines (IIV3s) and trivalent live attenuated influenza vaccine (LAIV3). However, ACIP recommends that all persons aged ≥6 months with egg allergy receive influenza vaccine. Any influenza vaccine (egg based or non–egg based) that is otherwise appropriate for the recipient's age and health status can be used. With regard to solid organ transplant recipients aged 18 through 64 years, the trivalent high-dose inactivated influenza vaccine (HD-IIV3) and trivalent adjuvanted inactivated influenza vaccine (aIIV3) are approved for persons aged ≥65 years. However, ACIP recommends that solid organ transplant recipients aged 18 through 64 years who are receiving immunosuppressive medication regimens may receive either HD-IIV3 or aIIV3 as acceptable options, without a preference over other age-appropriate IIV3s or trivalent recombinant influenza vaccine (RIV3).

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TABLE 1. Influenza vaccines — United States, 2025–26 influenza season*

Vaccine type and trade name (manufacturer)	Presentation	Age indication	µg HA (IIV3s and RIV3) or virus count (LAIV3) for each vaccine virus (per dose)	Route	Contains thimerosal as preservative
IIV3s (standard-dose, egg-based vaccines†)					
Afluria (Seqirus)	0.5-mL PFS§	≥3 yrs§	15 µg/0.5 mL	IM¶	No
	5.0-mL MDV**	≥6 mos§ (needle and syringe) 18 through 64 yrs (jet injector)¶	7.5 µg/0.25 mL 15 µg/0.5 mL	IM¶	Yes 24.5 µg Hg/0.5 mL**
Fluarix (GlaxoSmithKline)	0.5-mL PFS	≥6 mos	15 µg/0.5 mL	IM¶	No
FluLaval (GlaxoSmithKline)	0.5-mL PFS	≥6 mos	15 µg/0.5 mL	IM¶	No
Fluzone (Sanofi Pasteur)	0.5-mL PFS††	≥6 mos††	15 µg/0.5 mL	IM¶	No
	5.0-mL MDV**	≥6 mos††	7.5 µg/0.25 mL 15 µg/0.5 mL	IM¶	Yes 25 µg Hg/0.5 mL**
ccIIV3 (standard-dose, cell culture–based vaccine)					
Flucelvax (Seqirus)	0.5-mL PFS	≥6 mos	15 µg/0.5 mL	IM¶	No
	5.0-mL MDV**	≥6 mos**	15 µg/0.5 mL	IM¶	Yes 25 µg Hg/0.5 mL**
HD-IIV3 (high-dose, egg-based vaccine†)					
Fluzone High-Dose (Sanofi Pasteur)	0.5-mL PFS	≥65 yrs	60 µg/0.5 mL	IM¶	No
aIIV3 (standard-dose, egg-based vaccine† with MF59 adjuvant)					

Vaccine type and trade name (manufacturer)	Presentation	Age indication	μg HA (IIV3s and RIV3) or virus count (LAIV3) for each vaccine virus (per dose)	Route	Contains thimerosal as preservative
IIV3s (standard-dose, egg-based vaccines[†])					
Fluad (Seqirus)	0.5-mL PFS	≥65 yrs	15 μg/0.5 mL	IM[¶]	No
RIV3 (recombinant HA vaccine)					
Flublok (Sanofi Pasteur)	0.5-mL PFS	≥9 yrs	45 μg/0.5 mL	IM[¶]	No
LAIV3 (egg-based vaccine[†])					
FluMist (AstraZeneca)	0.2-mL prefilled single-use intranasal sprayer	2 through 49 yrs	$10^{6.5–7.5}$ FFU/0.2 mL	Intranasal	No

Abbreviations: ACIP = Advisory Committee on Immunization Practices; aIIV3 = adjuvanted inactivated influenza vaccine, trivalent; ccIIV3 = cell culture–based inactivated influenza vaccine, trivalent; FDA = Food and Drug Administration; FFU = fluorescent focus units; HA = hemagglutinin; HD-IIV3 = high-dose inactivated influenza vaccine, trivalent; Hg = mercury; IIV3 = inactivated influenza vaccine, trivalent; IM = intramuscular; LAIV3 = live attenuated influenza vaccine, trivalent; MDV = multidose vial; PFS = prefilled syringe; RIV3 = recombinant influenza vaccine, trivalent.

* Manufacturer package inserts and updated CDC and ACIP guidance should be consulted for additional information including, but not limited to, indications, contraindications, warnings, precautions. Package inserts for U.S.-licensed vaccines are available from FDA at Vaccines Licensed for Use in the United States. Availability and characteristics of specific products and presentations might change or differ from what is described in this table and in the text of this report.

[†] Although a history of severe allergic reaction (e.g., anaphylaxis) to egg is a labeled contraindication to the use of egg-based IIV3s and LAIV3, ACIP recommends that all persons aged ≥6 months with egg allergy should receive influenza vaccine and that any influenza vaccine (egg based or non–egg based) that is otherwise appropriate for the recipient's age and health status can be used (see Persons with a History of Egg Allergy in Prevention and Control of Seasonal Influenza with Vaccines).

[§] The approved dose volume for Afluria is 0.25 mL for children aged 6 through 35 months and 0.5 mL for persons aged ≥3 years. However, 0.25-mL PFSs are no longer available, and ACIP recommends that children aged ≤18 years, pregnant women, and all adults receive seasonal influenza vaccines only in single-dose formulations that are free of thimerosal as a preservative. The Afluria 0.5-mL PFS presentation should be used only for persons aged ≥3 years.

[¶] IM-administered influenza vaccines should be administered by needle and syringe. Although the MDV presentation of Afluria is approved by FDA for administration via the PharmaJet Stratis jet injector for adults aged 18 through 64 years, ACIP recommends that children aged ≤18 years, pregnant women, and all adults receive seasonal influenza vaccines only in single-dose formulations that are free of thimerosal as a preservative. For older children and adults, the recommended site for IM influenza vaccination is the deltoid muscle. The preferred site for infants and young children is the anterolateral aspect of the thigh. Additional specific guidance regarding site selection and needle length for IM administration is available in the CDC General Best Practices for Immunization.

** An MDV formulation containing thimerosal might be available for the 2025–26 season. However, ACIP recommends that children aged ≤18 years, pregnant women, and all adults receive seasonal influenza vaccines only in single-dose formulations that are free of thimerosal as a preservative.

[††] Fluzone is approved for children aged 6 through 35 months at either 0.25 mL or 0.5 mL per dose. However, 0.25-mL PFSs are no longer available, and ACIP recommends that children aged ≤18 years, pregnant women, and all adults receive seasonal influenza vaccines only in single-dose formulations that are free of thimerosal as a preservative. The Fluzone 0.5-mL PFS may be used for persons aged ≥6 months.

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TABLE 2. Contraindications and precautions for the use of influenza vaccines — United States, 2025–26 influenza season*

Vaccine type	Contraindications	Precautions
Egg-based IIV3s	• History of severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine† or to a previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV)§	• Moderate or severe acute illness with or without fever • History of Guillain-Barré syndrome within 6 wks of receipt of influenza vaccine
ccIIV3	• History of severe allergic reaction (e.g., anaphylaxis) to a previous dose of any ccIIV or any component of ccIIV3§	• Moderate or severe acute illness with or without fever • History of Guillain-Barré syndrome within 6 wks of receipt of influenza vaccine • History of severe allergic reaction to a previous dose of any other influenza vaccine (i.e., any egg-based IIV, RIV, or LAIV)¶
RIV3	• History of severe allergic reaction (e.g., anaphylaxis) to a previous dose of any RIV or any component of RIV3§	• Moderate or severe acute illness with or without fever • History of Guillain-Barré syndrome within 6 wks of receipt of influenza vaccine • History of severe allergic reaction to a previous dose of any other influenza vaccine (i.e., any egg-based IIV, ccIIV, or LAIV)¶

Vaccine type	Contraindications	Precautions
LAIV3	• History of severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine[†] or to a previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV)[§] • Concomitant aspirin- or salicylate-containing therapy in children and adolescents[§] • Children aged 2 through 4 yrs who have received a diagnosis of asthma or whose parents or caregivers report that a health care provider has told them during the preceding 12 mos that their child had wheezing or asthma or whose medical record indicates a wheezing episode has occurred during the preceding 12 mos • Children and adults who are immunocompromised due to any cause, including but not limited to immunosuppression caused by medications, congenital or acquired immunodeficiency states, HIV infection, anatomic asplenia, or functional asplenia (e.g., due to sickle cell anemia) • Close contacts and caregivers of severely immunosuppressed persons who require a protected environment • Pregnancy • Persons with active communication between the CSF and the oropharynx, nasopharynx, nose, or ear, or any other cranial CSF leak • Persons with cochlear implants** • Receipt of the influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours; receipt of peramivir within the previous 5 days; or receipt of baloxavir within the previous 17 days[††]	• Moderate or severe acute illness with or without fever • History of Guillain-Barré syndrome within 6 wks of receipt of influenza vaccine • Asthma in persons aged ≥5 yrs • Other underlying medical conditions that might predispose to complications after wild-type influenza infection (e.g., chronic pulmonary, cardiovascular [except isolated hypertension], renal, hepatic, neurologic, hematologic, or metabolic disorders [including diabetes mellitus])

Abbreviations: ACIP = Advisory Committee on Immunization Practices; ccIIV = cell culture–based inactivated influenza vaccine (any valency); ccIIV3 = cell culture–based inactivated influenza vaccine, trivalent; CSF = cerebrospinal fluid; IIV = inactivated influenza vaccine (any valency); IIV3 = inactivated influenza vaccine, trivalent; LAIV = live attenuated influenza vaccine (any valency); LAIV3 = live attenuated influenza vaccine, trivalent; RIV = recombinant influenza vaccine (any valency); RIV3 = recombinant influenza vaccine, trivalent.

* Manufacturer package inserts and updated CDC and ACIP guidance should be consulted for additional information including, but not limited to, indications, contraindications, warnings, and precautions. When a contraindication is present, a vaccine should not be administered. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction (General Best Practices for Immunization | CDC). Package inserts for U.S.-licensed vaccines are available from FDA at Vaccines Licensed for Use in the United States .

[†] Although a history of severe allergic reaction (e.g., anaphylaxis) to egg is a labeled contraindication to the use of egg-based IIV3s and LAIV3, ACIP recommends that all persons aged ≥6 months with egg allergy should receive influenza vaccine and that any influenza vaccine (egg based or non–egg based) that is otherwise appropriate for the recipient's age and health status can be used (see Persons with a History of Egg Allergy in Prevention and Control of Seasonal Influenza with Vaccines).

§ Labeled contraindication noted in package insert.
¶ If administered, vaccination should occur in a medical setting and should be supervised by a health care provider who can recognize and manage severe allergic reactions. Providers can consider consulting with an allergist in such cases to assist in identification of the component responsible for the allergic reaction.
** Injectable vaccines are recommended for persons with cochlear implant because of the potential for CSF leak, which might exist for a period after implantation. Providers might consider consultation with a specialist concerning risk for persistent CSF leak if an inactivated or recombinant vaccine cannot be used.
†† Use of LAIV3 in the context of influenza antivirals has not been studied; however, interference with activity of LAIV3 is biologically plausible, a possibility that is noted in the package insert for LAIV3. In the absence of data supporting an adequate minimum interval between influenza antiviral use and LAIV3 administration, the intervals provided are based on the half-life of each antiviral. The interval between influenza antiviral receipt and LAIV3 for which interference might occur might be further prolonged in the presence of medical conditions that delay medication clearance (e.g., renal insufficiency). Influenza antivirals might also interfere with LAIV3 if initiated within 2 weeks after vaccination. Persons who receive antivirals during the period starting with the specified time before receipt of LAIV3 through 2 weeks after receipt of LAIV3 should be revaccinated with an age-appropriate IIV3 or RIV3.

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TABLE 3. Influenza vaccine contraindications and precautions for persons with a history of severe allergic reaction to a previous dose of an influenza vaccine* — United States, 2025–26 influenza season

Vaccine (of any valency) associated with previous severe allergic reaction (e.g., anaphylaxis)	Available 2025–26 influenza vaccine		
	Egg-based IIV3s and LAIV3	ccIIV3	RIV3
Any egg-based IIV or LAIV	Contraindication†	Precaution§	Precaution§
Any ccIIV	Contraindication†	Contraindication†	Precaution§
Any RIV	Contraindication†	Precaution§	Contraindication†
Unknown influenza vaccine	Allergist consultation recommended	Allergist consultation recommended	Allergist consultation recommended

Abbreviations: ACIP = Advisory Committee on Immunization Practices; ccIIV = cell culture–based inactivated influenza vaccine (any valency); ccIIV3 = cell culture–based inactivated influenza vaccine, trivalent; IIV = inactivated influenza vaccine (any valency); IIV3 = inactivated influenza vaccine, trivalent; LAIV = live attenuated influenza vaccine (any valency); LAIV3 = live attenuated influenza vaccine, trivalent; RIV = recombinant influenza vaccine (any valency); RIV3 = recombinant influenza vaccine, trivalent.
* Manufacturer package inserts and updated CDC and ACIP guidance should be consulted for additional information including, but not limited to, indications, contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available from FDA at Vaccines Licensed for Use in the United States .
† When a contraindication is present, a vaccine should not be administered, consistent with CDC's General Best Practices for Immunization. In addition to the contraindications based on history of severe allergic reaction to influenza vaccines that are noted in the table, each individual influenza vaccine is contraindicated for persons who have had a severe allergic reaction (e.g., anaphylaxis) to any component of that vaccine. Vaccine components can be found in package inserts. Although a history of severe allergic reaction (e.g., anaphylaxis) to egg is a labeled contraindication to the use of egg-based IIV3s and LAIV3, ACIP recommends that all persons aged ≥6 months with egg allergy should receive influenza vaccine and that any influenza vaccine (egg based or non–egg based) that is otherwise appropriate for the recipient's age and health status can be used (see Persons with a History of Egg Allergy in Prevention and Control of Seasonal Influenza with Vaccines).
§ When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction, consistent with CDC's General Best Practices for Immunization. Providers can consider using the following vaccines in these instances; however, vaccination should occur in an inpatient or outpatient medical setting with supervision by a health care provider who is able to recognize and manage severe allergic

reactions: 1) for persons with a history of severe allergic reaction (e.g., anaphylaxis) to any egg-based IIV or LAIV of any valency, the provider can consider administering ccIIV3 or RIV3; 2) for persons with a history of severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, the provider can consider administering RIV3; and 3) for persons with a history of severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, the provider can consider administering ccIIV3. Providers can also consider consulting with an allergist to help determine which vaccine component is responsible for the allergic reaction.

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Suggested citation for this article: Grohskopf LA, Blanton LH, Ferdinands JM, Reed C, Dugan VG, Daskalakis DC. Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2025–26 Influenza Season. MMWR Morb Mortal Wkly Rep 2025;74:500–507. DOI: http://dx.doi.org/10.15585/mmwr.mm7432a2 .

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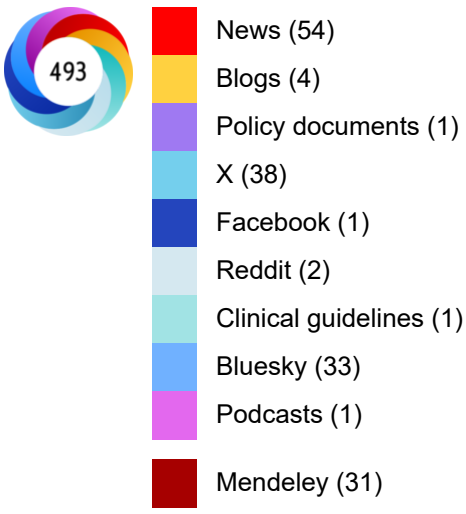
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HealthCap
RISK MANAGEMENT SERVICES

INCREASED INTERSEASONAL RESPIRATORY SYNCYTIAL VIRUS (RSV) ACTIVITY

RSV is an RNA virus of the genus Orthopneumovirus, family Pneumoviridae, primarily spread via respiratory droplets when a person coughs or sneezes, and through direct contact with a contaminated surface. RSV is a common cause of respiratory illness and can result in severe disease in infants, young children, older adults, and individuals with chronic medical conditions. Infants, young children, and older adults with chronic medical conditions are at risk of severe disease from RSV infection

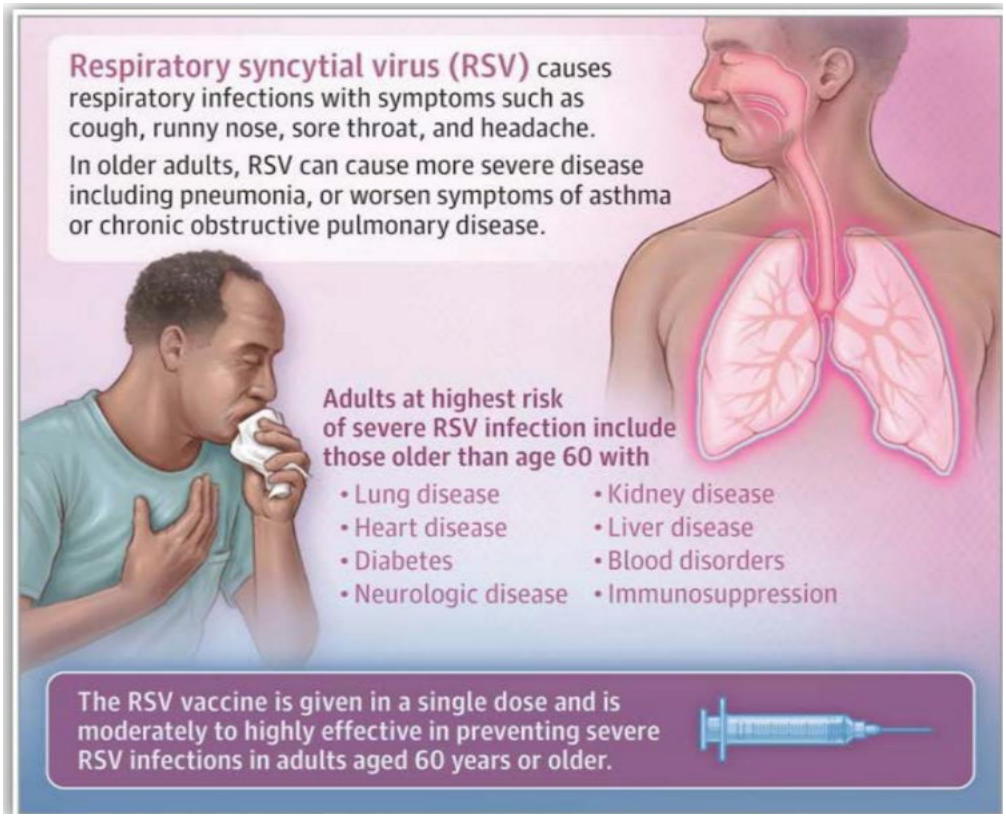
Recommendations:

1. Clinicians and caregivers should be aware of the typical clinical presentation of RSV for different age groups.
2. Clinicians should consider testing patients with a negative SARS-CoV-2 test and acute respiratory illness or the age-specific symptoms presented above for non-SARS-CoV-2 respiratory pathogens, such as RSV. Real-time reverse transcription-polymerase chain reaction (rRT-PCR) is the preferred method for testing for respiratory viruses.
3. Clinicians should report laboratory-confirmed RSV cases and suspected clusters of severe respiratory illness to local and state health departments according to their routine reporting requirements.
4. Healthcare personnel, childcare providers, and staff of long-term care facilities should avoid reporting to work while acutely ill, even if they test negative for SARS-CoV-2.
5. Clinicians can review weekly updates to the NREVSS website and refer to surveillance data collected by local hospitals and health departments for information on RSV circulation trends in their area.
   https://www.cdc.gov/nrevss/php/dashboard/index.html

SAMPLE

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This policy and procedure is not intended to replace the informed judgment of individual physicians, nurses or other clinicians nor is it intended as a statement of prevailing community standards or minimum standards of practice. It is a suggested method and technique for achieving optimal health care, not a minimum standard below which residents necessarily would be placed at risk.



Source: JAMA Facebook post: https://www.facebook.com/photo/?fbid=701650592009231&set=a.625299199644371

Clinical Overview of RSV

AUG. 18, 2025

For Health Care Providers

WHAT TO KNOW

- RSV usually causes mild symptoms, but it can cause severe illness. This is more likely in infants, some young children, people with compromised immune systems, and adults who are older or have certain risk factors.
- CDC recommends a single dose of RSV vaccine to protect all adults ages 75 and older and adults ages 50–74 who are at increased risk of severe RSV.
- To protect infants and some young children, CDC recommends the maternal RSV vaccine (Pfizer's Abrysvo) for pregnant women during weeks 32–36 of pregnancy, or a long-acting infant RSV antibody (nirsevimab or clesrovimab) for babies given after birth. Nirsevimab is recommended for some young children ages 8–19 months.

Overview

Respiratory syncytial virus (RSV) causes respiratory illness among persons of all age groups. RSV is one of the most common causes of childhood illness and is the most common cause of hospitalization in infants. It also causes severe disease and hospitalizations in adults, especially those who are older or have certain risk factors.

In most regions of the United States, RSV season starts in the fall and peaks in the winter, but the timing and severity of RSV season in a given community can vary from year to year.

Healthcare providers should consider RSV in the differential diagnosis of patients with respiratory illness, particularly during the RSV season.

For more information about recommended infection prevention and control practices in healthcare settings, see CDC's Isolation Precautions Guideline: Preventing Transmission of Infectious Agents in Healthcare Settings.

RSV Immunizations

There are immunizations to protect people who are at increased risk of severe RSV.

- CDC recommends RSV vaccination for all adults ages 75 and older and for adults ages 50–74 who are at increased risk of severe RSV.
- To protect infants from severe RSV, CDC recommends an RSV vaccine for pregnant women (Pfizer's Abrysvo) or an infant RSV antibody given to the baby.
  - Nirsevimab is also recommended for a small group of young children ages 8–19 months entering their second RSV season. Clesrovimab has not been recommended for this group.

Keep in mind

A recommendation from a healthcare provider is one of the most important factors that influences a patient's choice to accept a new prevention product or vaccine.

Clinical features

In infants and young children

RSV infection can cause a variety of respiratory illnesses and symptoms in infants and young children. It most commonly causes a cold-like illness but can also cause lower respiratory infections, like bronchiolitis and pneumonia. Two to three percent of infants under 6 months of age

are hospitalized with RSV every year. Severe disease most commonly occurs in very young infants, including healthy babies without underlying conditions.

Additionally, children with any of the following underlying conditions are considered at increased risk of severe RSV disease:

- Premature infants
- Children with suppressed or weakened immune systems
- Children who have neuromuscular disorders or a congenital anomaly, including those who have difficulty swallowing or clearing mucus secretions
- Children with severe cystic fibrosis

Infants and young children with RSV infection may have rhinorrhea and a decrease in appetite before any other symptoms appear. Cough usually develops 1 to 3 days later. Soon after the cough develops, sneezing, fever, and wheezing may occur. Symptoms in very young infants can include irritability, decreased activity, and apnea.

Most otherwise healthy infants and young children who are infected with RSV do not need hospitalization. Those who are hospitalized may require oxygen, rehydration, and mechanical ventilation. Most improve with supportive care and are discharged in a few days.

In adults ages 50 and older

Adults who get RSV usually have mild or no symptoms. Symptoms are usually consistent with an upper respiratory tract infection, which can include rhinorrhea, pharyngitis, cough, headache, fatigue, and fever. Milder illness in adults typically resolves in 1–2 weeks. However, RSV can also cause severe disease and hospitalization in adults.

RSV can sometimes also lead to exacerbation of serious conditions such as:

- Asthma
- Chronic obstructive pulmonary disease (COPD)
- Heart failure

Epidemiologic evidence indicates that all adults ages 75 and older and adults ages 50–74 with certain risk factors are at increased risk of severe RSV.

Conditions that increase the risk for severe RSV

The following conditions increase the risk of severe RSV:*

- Chronic cardiovascular disease (e.g., heart failure, coronary artery disease, or congenital heart disease [excluding isolated hypertension])
- Chronic lung or respiratory disease (e.g., chronic obstructive pulmonary disease, emphysema, asthma, interstitial lung disease, or cystic fibrosis)
- End-stage renal disease or dependence on hemodialysis or other renal replacement therapy
- Diabetes mellitus complicated by chronic kidney disease, neuropathy, retinopathy, or other end-organ damage, or requiring treatment with insulin or sodium-glucose cotransporter-2 (SGLT2) inhibitor
- Neurologic or neuromuscular conditions causing impaired airway clearance or respiratory muscle weakness (e.g., poststroke dysphagia, amyotrophic lateral sclerosis, or muscular dystrophy [excluding history of stroke without impaired airway clearance])
- Chronic liver disease (e.g., cirrhosis)
- Chronic hematologic conditions (e.g., sickle cell disease or thalassemia)
- Severe obesity (body mass index ≥40 kg/m^2)
- Moderate or severe immune compromise[†]
- Residence in a nursing home
- Other chronic medical conditions or risk factors that a health care provider determines would increase the risk for severe disease due to viral respiratory infection (e.g., frailty,[§] situations in which health care providers have concern for presence of undiagnosed chronic medical conditions, or residence in a remote or rural community where transportation of patients with severe RSV disease for escalation of medical care is challenging[¶])

* Patient attestation is sufficient evidence of the presence of a risk factor. Vaccinators should not deny RSV vaccination to a person because of lack of medical documentation.

† A list of moderately or severely immunocompromising conditions can be found in the COVID-19 vaccination interim clinical considerations.

§ Frailty is a multidimensional geriatric syndrome that reflects a state of increased vulnerability to adverse health outcomes. Although no consensus definition exists, one frequently used tool for determination is the Fried frailty phenotype assessment in which frailty is defined as a clinical syndrome with three or more of the following symptoms present: unintentional weight loss (10 lbs [4.5 kg] in the past year), self-reported exhaustion, weakness (grip strength), slow walking speed, or low physical activity.

¶ Health care providers caring for adults ages 50–74 years residing in these communities may use clinical judgement, knowledge of local RSV epidemiology, and community incidence of RSV-associated hospitalization to recommend vaccination for a broader population in this age group.

Resources

RSV Immunization Guidance for Infants and Young Children

RSV Vaccine Guidance for Pregnant Women

RSV Vaccine Guidance for Adults

SOURCES

CONTENT SOURCE:

National Center for Immunization and Respiratory Diseases; Coronavirus and Other Respiratory Viruses Division

Diagnostic Testing for RSV

FEB. 24, 2026

For Health Care Providers

WHAT TO KNOW

- Several types of laboratory tests can confirm respiratory syncytial virus (RSV) infection.
- Nucleic acid amplification tests (NAATs), such as PCR tests, are highly sensitive and can be used to diagnose anyone with RSV. Antigen tests are also available.

Overview

Clinical symptoms of RSV are non-specific and can overlap with other viral respiratory infections, as well as some bacterial infections. Several types of laboratory tests are available to confirm RSV infection. These tests may be performed on upper and lower respiratory specimens.

The most commonly used types of RSV clinical laboratory tests are:

- Nucleic acid amplification tests (NAATs), such as real-time reverse transcription-polymerase chain reaction (rRT-PCR), are highly sensitive tests for virus detection.
- Antigen tests are generally less sensitive than NAATs but can provide quicker results.

Both rRT-PCR and antigen detection tests are effective methods for diagnosing RSV. Some tests can differentiate between RSV subtypes (A and B), but the clinical significance of these subtypes is unclear.

Healthcare providers should consult experienced laboratorians or read the product's package insert for more information on the type of respiratory specimen to be collected, interpretation of results, and expected performance of the specific test to be used.

SOURCES

CONTENT SOURCE:

National Center for Immunization and Respiratory Diseases; Coronavirus and Other Respiratory Viruses Division

Symptoms and Care of RSV

FEB. 20, 2026

For Everyone

WHAT TO KNOW

- Respiratory syncytial virus (RSV) usually causes mild, cold-like symptoms. Most RSV infections go away on their own.
- RSV can be serious for babies, some young children, and adults who are older or have certain risk factors.
- Most RSV symptoms can be managed with over-the-counter medications.

Overview

People infected with RSV usually show symptoms within 4 to 6 days after getting infected. Symptoms of RSV infection usually include:

- Runny nose
- Congestion
- Decrease in appetite
- Coughing
- Sneezing
- Fever
- Wheezing

These symptoms usually appear in stages and not all at once.

In very young infants with RSV, their only symptoms may be irritability, decreased activity, and breathing difficulties.

RSV can worsen underlying lung conditions like chronic obstructive pulmonary disease (COPD) or asthma. People with RSV infection and COPD or asthma may need treatment for asthma attacks or COPD flare-ups.

When to seek emergency care

Call your healthcare professional if you or your child are having difficulty breathing, not drinking enough fluids, or experiencing worsening symptoms.

Care

Antiviral medication is not routinely recommended to fight RSV. Most RSV infections go away on their own in a week or two. However, RSV can cause serious illness in some people.

Take steps to relieve symptoms

- **Manage fever and pain** with over-the-counter fever reducers and pain relievers, such as acetaminophen or ibuprofen. Never give aspirin to children.
- **Drink enough fluids.** It is important for people with RSV infection to drink enough fluids to prevent dehydration (loss of body fluids).
- **Talk to your healthcare provider** about non-prescription medicines.

- **For children**: Some medicines contain ingredients that are not good for children or may interfere with prescription medicines.
- **For adults** who are older or at increased risk of severe RSV disease: Some over-the-counter medications may increase blood pressure or interfere with prescription medicines.

SOURCES

CONTENT SOURCE:
National Center for Immunization and Respiratory Diseases; Coronavirus and Other Respiratory Viruses Division

RSV in Adults

FEB. 20, 2026

For Everyone

WHAT TO KNOW

- Respiratory syncytial virus (RSV) can be dangerous for older adults and adults who have certain medical conditions, are elderly or frail, or live in a nursing home.
- CDC recommends everyone ages 75 and older get an RSV vaccine.
- CDC recommends adults ages 50–74 who are at increased risk of severe RSV illness get an RSV vaccine.
- If you have already gotten an RSV vaccine, you do not need to get another one at this time.



Overview

RSV can be dangerous for certain adults. Each year, an estimated 110,000–180,000 adults ages 50 and older in the United States are hospitalized due to RSV. In general, the risk of severe RSV illness rises with increasing age and if you have certain risk factors.

Risk factors for severe RSV illness

Adults at highest risk for severe RSV illness include:

- Adults ages 75 and older
- Adults with chronic heart or lung disease
- Adults with weakened immune systems
- Adults with certain other underlying medical conditions
- Adults living in nursing homes

For the complete list of medical conditions and risk factors for severe RSV disease, see RSV Clinical Overview.

Spotlight

CDC's Respiratory Virus Guidance provides actions you can take to protect yourself and others from health risks caused by RSV and other respiratory viruses.

Severe RSV illness

When adults get RSV, they typically have mild cold-like symptoms, but some may develop pneumonia (an infection in the lungs). Adults who get very sick from RSV may need to be hospitalized. Severe RSV illness can be fatal for some adults.

RSV can sometimes also lead to worsening of other serious conditions such as:

- Asthma
- Chronic obstructive pulmonary disease (COPD) – a chronic disease of the lungs that makes it hard to breathe
- ure – when the heart can't pump enough blood and oxygen through the body

Cite

When to seek emergency care

Call your healthcare provider if you have difficulty breathing, have trouble eating or drinking, feel chest pain or pressure, experience sudden dizziness or confusion, or experience worsening of symptoms.

RSV vaccine for adults

CDC recommends an RSV vaccine if you are ages 75 or older or if you are ages 50–74 and are at increased risk for severe RSV illness.

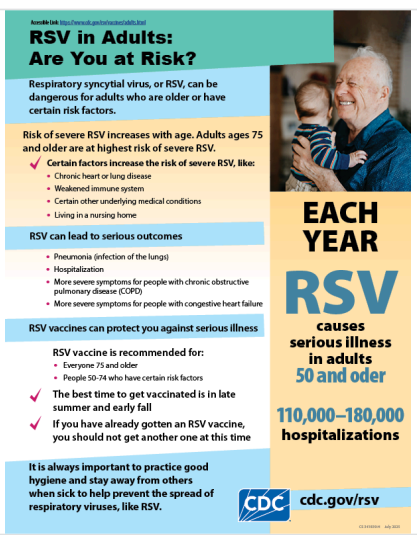


Vaccines for Adults

Information on RSV vaccines to protect adults ages 50 and older against severe RSV illness.

Resources

RSV in Adults PDF Flyer



RSV in Adults: Are You at Risk? PDF

Information about RSV and vaccines for adults

Download

JAN. 8, 2026

SOURCES

CONTENT SOURCE:

National Center for Immunization and Respiratory Diseases; Coronavirus and Other Respiratory Viruses Division

Accessible Link: https://www.cdc.gov/rsv/vaccines/adults.html

RSV in Adults: Are You at Risk?

Respiratory syncytial virus, or RSV, can be dangerous for adults who are older or have certain risk factors.



Risk of severe RSV increases with age. Adults ages 75 and older are at highest risk of severe RSV.

✓ **Certain factors increase the risk of severe RSV, like:**

- Chronic heart or lung disease
- Weakened immune system
- Certain other underlying medical conditions
- Living in a nursing home

RSV can lead to serious outcomes

- Pneumonia (infection of the lungs)
- Hospitalization
- More severe symptoms for people with chronic obstructive pulmonary disease (COPD)
- More severe symptoms for people with congestive heart failure

RSV vaccines can protect you against serious illness

RSV vaccine is recommended for:

- Everyone 75 and older
- People 50-74 who have certain risk factors

✓ **The best time to get vaccinated is in late summer and early fall**

✓ **If you have already gotten an RSV vaccine, you should not get another one at this time**

It is always important to practice good hygiene and stay away from others when sick to help prevent the spread of respiratory viruses, like RSV.

EACH YEAR

RSV

causes serious illness in adults 50 and oder

110,000–180,000 hospitalizations

CDC

cdc.gov/rsv

CS 341839-H July 2025

RSV Vaccine Guidance for Adults

For Health Care Providers

FEB. 24, 2026

WHAT TO KNOW

- CDC recommends a single dose of respiratory syncytial virus (RSV) vaccine for all adults ages 75 and older and adults ages 50–74 at increased risk of severe RSV illness.
- There are three FDA-licensed RSV vaccines recommended for use in adults ages 50 and older: GSK's Arexvy, Moderna's mResvia, and Pfizer's Abrysvo. There is no preference for which vaccine adults 50 and older should receive.
- Eligible adults can get an RSV vaccine at any time, but the best time to vaccinate patients is in late summer and early fall before RSV usually starts to spread in the community.
- The RSV vaccine is not currently an annual vaccine. People who have already received one dose have completed their vaccination and should not receive another dose at this time.

Overview

CDC recommends a single dose of RSV vaccine for certain adults to help prevent serious RSV infection and hospitalization.

RSV vaccination is recommended for the following adults:

- All adults ages 75 and older
- Adults ages 50–74 at increased risk of severe RSV illness

Conditions that increase risk of severe RSV illness

The following conditions increase the risk of severe RSV illness: [A]

- Chronic cardiovascular disease (e.g., heart failure, coronary artery disease, or congenital heart disease [excluding isolated hypertension])
- Chronic lung or respiratory disease (e.g., chronic obstructive pulmonary disease, emphysema, asthma, interstitial lung disease, or cystic fibrosis)
- End-stage renal disease or dependence on hemodialysis or other renal replacement therapy
- Diabetes mellitus complicated by chronic kidney disease, neuropathy, retinopathy, or other end-organ damage, or requiring treatment with insulin or sodium-glucose cotransporter-2 (SGLT2) inhibitor
- Neurologic or neuromuscular conditions causing impaired airway clearance or respiratory muscle weakness (e.g., poststroke dysphagia, amyotrophic lateral sclerosis, or muscular dystrophy [excluding history of stroke without impaired airway clearance])
- Chronic liver disease (e.g., cirrhosis)
- Chronic hematologic conditions (e.g., sickle cell disease or thalassemia)
- Severe obesity (body mass index ≥40 kg/m^2)
- Moderate or severe immune compromise [B]
- Residence in a nursing home
- Other chronic medical conditions or risk factors that a healthcare provider determines would increase the risk for severe disease due to viral y infection (e.g., frailty, [C] situations in which healthcare providers have concern for presence of undiagnosed chronic medical

Cite

conditions, or residence in a remote or rural community where transportation of patients with severe RSV disease for escalation of medical care is challenging [D])

Available vaccines

There are currently three vaccines available:

- GSK's Arexvy
- Moderna's mResvia
- Pfizer's Abrysvo

CDC does not have a preferential recommendation for any specific vaccine. Eligible adults should receive any RSV vaccine that is licensed and available for them.

ACIP Recommendation

CDC works closely with the Advisory Committee on Immunization Practices (ACIP) to develop vaccine recommendations. Go to ACIP Vaccine Recommendations to learn more.

Recommendations

Timing of RSV vaccination

Eligible adults who have not previously received RSV vaccination may be vaccinated at any time of year, but vaccination will have the most benefit if administered in late summer or early fall, just before the RSV season. In most of the continental United States, this corresponds to vaccination during August–October.

Number of doses

The RSV vaccine is not currently an annual vaccine, meaning eligible adults do not need to get a dose every RSV season. Currently, CDC recommends only a single dose of RSV vaccine for all adults ages 75 and older and for adults ages 50–74 with increased risk of severe RSV illness. Surveillance and evaluation activities are ongoing to determine whether adults might benefit from receiving additional RSV vaccine doses in the future.

The need for additional RSV vaccine doses will be evaluated by ACIP and CDC in the future; recommendations will be updated as needed.

Coadministration with other vaccines

RSV vaccines can be coadministered with other adult vaccines during the same visit.

Data on immunogenicity of RSV vaccines and other vaccines when coadministered are currently limited. These limited data show coadministration of RSV with other respiratory virus vaccines may result in lower antibody titers, but the clinical significance of this is unknown.

KEEP READING
Respiratory Syncytial Virus (RSV) Immunization: Information for Health Care Providers

Coadministration of RSV vaccine with one or more adult vaccines during the same visit may increase the frequency of common side effects (e.g., pain at the injection site, fever, headache, myalgia). CDC will continue to monitor vaccine safety and effectiveness to guide recommendations for coadministration.

When deciding whether to coadminister other vaccines with an RSV vaccine, providers should consider:

- whether the patient is recommended other vaccines
- the feasibility of the patient returning for vaccination during a separate visit
- risk for acquiring vaccine-preventable disease
- vaccine reactogenicity profiles
- patient preferences

Safety

To learn more about RSV vaccine safety, go to the following page:



Respiratory Syncytial Virus (RSV) Vaccine Safety

Learn safety information about the Respiratory Syncytial Virus (RSV) vaccine.

Refer to the Pfizer Abrysvo FDA package insert, GSK Arexvy FDA package insert PDF, Moderna mResvia FDA package insert PDF, and CDC RSV Vaccine Information Sheet for contraindications, precautions, and additional safety information.

Reporting adverse events

Adverse events after RSV vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS), even if it is not clear that the vaccine caused the adverse event. Information on how to submit a report to VAERS is available at https://vaers.hhs.gov/index.html or by telephone at 1-800-822-7967. Anyone can submit a report to VAERS — healthcare professionals, vaccine manufacturers, and the general public.

V-safe

Encourage patients to sign-up for V-safe, where they can share with CDC how they feel after getting an RSV vaccine.

V-safe

Effectiveness

GSK's Arexvy

In studies of the real-world effectiveness of Arexvy during the 2023–2024 RSV season, the first since licensure of Arexvy, Arexvy was approximately 77% effective in preventing RSV-associated emergency department encounters and 83% effective in preventing RSV-associated hospitalizations in adults 60 and older. In addition, effectiveness was demonstrated among adults ages 60 years or older with certain immunocompromising conditions and those with end-stage renal disease and in all adults 75 years or older.

Studies assessing the real-world effectiveness of Arexvy during the second year following vaccination are currently underway. Clinical trial data showed durable protection against symptomatic RSV lower respiratory tract disease through at least 23 months following vaccination, with some waning over time. CDC will continue to monitor real-world RSV vaccine effectiveness during each respiratory virus season.

Pfizer's Abrysvo

In studies of the real-world effectiveness of Abrysvo during the 2023–2024 RSV season, the first RSV season after licensure, Abrysvo was approximately 79% effective in preventing RSV-associated emergency department encounters and 73% effective in preventing RSV-associated hospitalizations in adults 60 and older. In addition, effectiveness was demonstrated among adults ages 60 years and older with certain immunocompromising conditions and those with end-stage renal disease and in all adults ages 75 years and older.

Studies assessing the real-world effectiveness of Abrysvo during the second year following vaccination are currently underway. Clinical trial data showed durable protection against symptomatic RSV lower respiratory tract disease through at least 16 months following vaccination, with some waning over time. CDC will continue to monitor real-world RSV vaccine effectiveness during each respiratory virus season.

Moderna's mResvia

Due to the recency of mResvia licensure, real-world vaccine effectiveness against RSV-associated hospitalization and other severe illness cannot yet be estimated. Vaccine efficacy data are available from one large phase 2/3 randomized, blinded placebo-controlled clinical trial in participants ages 60 and older. In this trial, efficacy of a single dose of mResvia against symptomatic RSV was approximately 80% during the first 4 months following vaccination, 56% during the first 12 months after vaccination, and 34% through 18 months after vaccination.

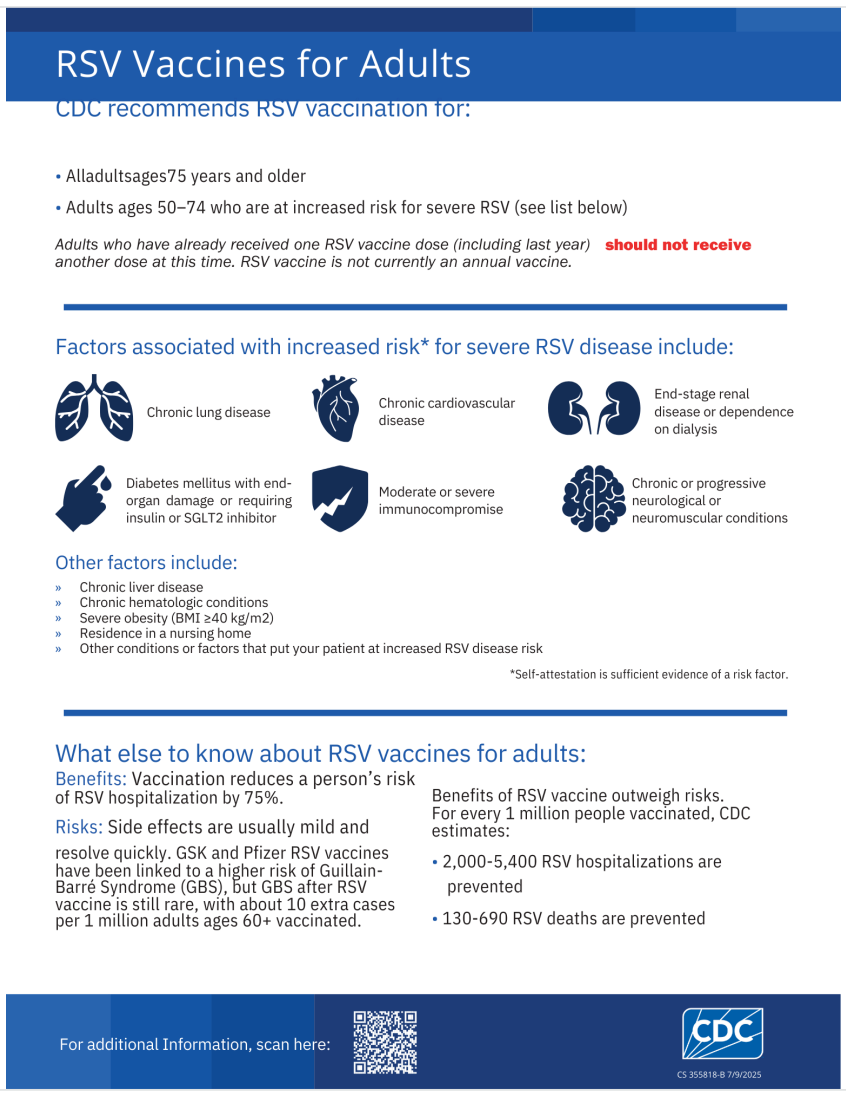
CDC will continue to monitor real-world RSV vaccine effectiveness during each respiratory virus season.

Adults younger than 50 years

FDA has approved use of two RSV vaccines — Pfizer's Abrysvo and Moderna's mResvia — in adults ages 18-49 years who are at increased risk for RSV-associated lower respiratory tract infection. ACIP and CDC have been reviewing evidence for use of RSV vaccines in younger adults who are at increased risk for RSV illness and will continue considering new evidence as it becomes available. Evidence may include:

- Updated RSV vaccine safety analyses, including results from the full 2023–2024 RSV season in the FDA-CMS partnership analysis incorporating chart confirmation of GBS diagnoses;
- Additional data on duration of protection from RSV vaccination and immune response after revaccination;
- Immunogenicity data in adults with immunocompromise;
- Cost effectiveness of RSV vaccination in this population.

RSV in Adults Flyer for Healthcare Professionals



RSV Vaccines for Adults flyer for healthcare professionals

Download PDF of RSV in Adults HCP Flyer here: English PDF

Resources

- ACIP Vaccine Recommendations
- RSV Vaccine Information Statement
- Safety Information for Respiratory Syncytial Virus (RSV) Vaccine
- CDC RSV Surveillance & Research

Still have questions?

Contact NIP-INFO by emailing nipinfo@cdc.gov.

SOURCES

CONTENT SOURCE:

National Center for Immunization and Respiratory Diseases; Coronavirus and Other Respiratory Viruses Division

FOOTNOTES

A. [A] Patient attestation is sufficient evidence of the presence of a risk factor. Vaccinators should not deny RSV vaccination to a person because of lack of medical documentation.

B. [B] A list of moderately or severely immunocompromising conditions can be found in the COVID-19 vaccination interim clinical considerations guide.

C. [C] Frailty is a multidimensional geriatric syndrome that reflects a state of increased vulnerability to adverse health outcomes. Although no consensus definition exists, one frequently used tool for determination is the Fried frailty phenotype assessment, in which frailty is defined as a clinical syndrome with three or more of the following symptoms present: unintentional weight loss (10 lbs [4.5 kg] in the past year), self-reported exhaustion, weakness (grip strength), slow walking speed, or low physical activity.

D. [D] Healthcare providers caring for adults aged 50–74 years residing in these communities may use clinical judgement, knowledge of local RSV epidemiology, and community incidence of RSV-associated hospitalization to recommend vaccination for a broader population in this age group.

Morbidity and Mortality Weekly Report (*MMWR*)

Use of Respiratory Syncytial Virus Vaccines in Adults Aged ≥60 Years: Updated Recommendations of the Advisory Committee on Immunization Practices — United States, 2024

Weekly / August 15, 2024 / 73(32);696-702
On August 6, 2024, this report was posted online as an MMWR *Early Release.*

Summary

What is already known about this topic?

On June 21, 2023, the Advisory Committee on Immunization Practices (ACIP) recommended that adults aged ≥60 years may receive a single dose of respiratory syncytial virus (RSV) vaccine, using shared clinical decision-making.

What is added by this report?

On June 26, 2024, ACIP voted to update these recommendations as follows: all adults aged ≥75 years and adults aged 60–74 years who are at increased risk for severe RSV disease should receive a single dose of RSV vaccine.

What are the implications for public health practice?

These updated recommendations are intended to maximize RSV vaccination coverage among persons most likely to benefit. Continued postlicensure monitoring will guide future recommendations.

Related Materials

Article PDF

Full Issue PDF

Cite



[PNG - 875 KB]

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View suggested citation

Abstract

Respiratory syncytial virus (RSV) is a major cause of respiratory illness and hospitalization in older adults during fall and winter in the United States. The 2023–2024 RSV season was the first during which RSV vaccination was recommended for U.S. adults aged ≥60 years, using shared clinical decision-making. On June 26, 2024, the Advisory Committee on Immunization Practices voted to update this recommendation as follows: a single dose of any Food and Drug Administration–approved RSV vaccine (Arexvy [GSK]; Abrysvo [Pfizer]; or mResvia [Moderna]) is now recommended for all adults aged ≥75 years and for adults aged 60–74 years who are at increased risk for severe RSV disease. Adults who have previously received RSV vaccine should not receive another dose. This report summarizes the evidence considered for these updated recommendations, including postlicensure data on vaccine effectiveness and safety, and provides clinical guidance for the use of RSV vaccines in adults aged ≥60 years. These updated recommendations are intended to maximize RSV vaccination coverage among persons most likely to benefit, by clarifying who is at highest risk and by reducing implementation barriers associated with the previous shared clinical decision-making recommendation. Continued postlicensure monitoring will guide future recommendations.

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Introduction

Respiratory syncytial virus (RSV) is a major cause of respiratory illness and hospitalizations in older adults during fall and winter in the United States (*1*). On June 21, 2023, CDC's Advisory Committee on Immunization Practices (ACIP) issued its first adult RSV vaccination recommendation, stating that adults aged ≥60 years may receive a single dose of RSV vaccine, using shared clinical decision-making (*2*).

As of spring 2024, 20%–25% of U.S. adults aged ≥60 years were estimated to have received RSV vaccine,* and the first postlicensure safety and effectiveness data for GSK's Arexvy and Pfizer's Abrysvo became available.† In addition, on May 31, 2024, the Food and Drug Administration (FDA) approved a third RSV vaccine (mResvia [Moderna]) for prevention of RSV-associated lower respiratory tract disease (RSV-LRTD) in adults aged ≥60 years§ (*3*,*4*).

To update adult RSV vaccination recommendations, ACIP considered data from previous meetings; new data from randomized, observer-blind, placebo-controlled clinical trials (RCTs) of mResvia; and postlicensure data on Arexvy and Abrysvo. This report summarizes that evidence and presents updated ACIP recommendations for RSV vaccination in adults aged ≥60 years.¶

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Methods

The ACIP Work Group for RSV prevention in adults met at least monthly since July 2023 to consider updates to adult RSV vaccination recommendations, using the Evidence to Recommendation Framework (EtR) to guide its deliberations.** Work Group conclusions were publicly presented to ACIP on June 26, 2024. Full details for Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) are available at https://www.cdc.gov/vaccines/acip/recs/grade/mrna-rsv-vaccine-older-adults.html and https://www.cdc.gov/vaccines/acip/recs/grade/protein-subunit-rsv-vaccines-older-adults.html and for EtR are available at https://www.cdc.gov/vaccines/acip/recs/grade/mrna-rsv-vaccine-older-adults-etr.html and https://www.cdc.gov/vaccines/acip/recs/grade/protein-subunit-rsv-vaccines-older-adults-etr.html.

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Vaccine Efficacy and Safety

mRNA RSV Vaccine (Moderna mResvia)

In considering recommendations for use of Moderna's mResvia, ACIP reviewed data from two RCTs. A phase 2/3 trial contributed safety and efficacy data from 36,685 immunocompetent participants aged ≥60 years who received a single dose of mResvia (50 μg of mRNA encoding the prefusion RSV F protein) or saline placebo; participants were enrolled on a rolling basis during November 2021–December 2022 (Moderna, mRNA-1345 phase 2/3 clinical trial, unpublished data, 2024) (*5*). A phase 1 trial contributed additional safety data from 106 participants aged 65–79 years who received either the phase 2/3 trial vaccine formulation or placebo (*6*).

Vaccine efficacy. In Moderna's primary efficacy analysis (median per participant postvaccination follow-up time = 3.7 months; range = 0.5–12.6 months), efficacy of 1 dose was 78.7% (95% CI = 62.8%–87.9%) in preventing symptomatic, laboratory-confirmed RSV-LRTD with two or more lower respiratory symptoms and 80.9% (95% CI = 50.1%–92.7%) in preventing RSV-LRTD with three or more lower respiratory symptoms†† (Table 1) (*7*). Using all available follow-up time (median = 18.8 months per participant; range = 0.5–24 months), efficacy of mResvia was 47.4% (95% CI = 35.0%–57.4%) against RSV-LRTD with two or more symptoms and 48.4% (95% CI = 27.9%–63.1%) against RSV-LRTD with three or more symptoms (Moderna, mRNA-1345 phase 2/3 clinical trial, unpublished data, 2024) (*7*).

Efficacy point estimates were higher during the first 12 months after vaccination compared with the subsequent 12 months. The trial was not powered to estimate efficacy against medically attended RSV illness, including hospitalization, or RSV-associated death.

Vaccine safety. Severe reactogenicity events were more common among mResvia recipients than among placebo recipients§§ (pooled relative risk = 1.54 [95% CI = 1.40–1.68]); (Supplementary Table, https://stacks.cdc.gov/view/cdc/159161) (*4*). The pooled relative risk for serious adverse events comparing the intervention and control groups was 1.00 (95% CI = 0.95–1.05).¶¶ No cases of Guillain-Barré syndrome (GBS), other inflammatory neurologic events, myocarditis, or pericarditis were recorded within 42 days after mResvia vaccination.

Protein Subunit RSV Vaccines (GSK Arexvy and Pfizer Abrysvo)

Vaccine effectiveness. Postlicensure data were reviewed from four observational studies of vaccine effectiveness (VE) of protein subunit RSV vaccination against RSV-associated hospitalization among adults aged ≥60 years during the first RSV season after vaccination***; estimates from the general population or among immunocompetent adults only ranged from 75% (95% CI = 50%–87%) to 82% (95% CI = 69%–89%) (*8*). VE was similar across vaccine products (GSK Arexvy and Pfizer Abrysvo) and patient age groups (60–74 years and ≥75 years). In addition, effectiveness was demonstrated among adults aged ≥60 years with certain immunocompromising conditions††† and those with end-stage renal disease.

Vaccine safety: Guillain-Barré syndrome. Postlicensure safety data were reviewed from an FDA self-controlled case series analysis estimating risk for GBS attributable to protein subunit RSV vaccination among Medicare beneficiaries aged ≥65 years (*9*). The analysis compared GBS incidence during a risk interval (days 1–42 postvaccination) with that during a control interval (days 43–90 postvaccination). Among beneficiaries vaccinated before October 8, 2023, the GBS adjusted incidence rate ratio in the risk interval versus the control interval was 2.30 (95% CI = 0.39–13.72) for GSK's Arexvy and 4.48 (95% CI = 0.88–22.90) for Pfizer's Abrysvo. In this analysis, GBS cases were identified using medical claims data and were not yet confirmed by review of medical records; a final analysis will incorporate medical record review for confirmation of GBS diagnoses and will include additional adults vaccinated later in the 2023–2024 RSV season. Overall, results from this initial analysis did not provide clear, conclusive evidence of an elevated risk for GBS associated with RSV vaccination in older adults, but an elevated risk of GBS could not be ruled out. GBS safety surveillance is ongoing and additional analyses are underway.

Vaccine safety: immune thrombocytopenia. Results of rapid cycle analysis performed by the Vaccine Safety Datalink[§§§] demonstrated a statistical signal for immune thrombocytopenia (ITP) in a risk interval (days 1–21) after GSK Arexvy vaccination, without simultaneous receipt of another vaccine, compared with a comparison interval (days 22–42)[¶¶¶] (*10*). However, medical record review revealed that onset of most ITP cases occurred before vaccination; onset after vaccination occurred in only four cases identified during the risk interval and one case during the comparison interval. Because of the small number of cases, an association cannot be confirmed between GSK Arexvy vaccination and ITP; supplementary evaluation of identified cases and monitoring for additional cases are ongoing.

Balance of benefits and risks. In a modeling study, estimated public health benefits of protein subunit RSV vaccination were compared with potential GBS risk. Benefits were estimated using observational VE, surveillance data on incidence of RSV-associated outcomes, and RCT evidence of duration of vaccine-conferred protection; risk for GBS was estimated from the FDA self-controlled case series analysis (*11*). Estimated RSV-associated hospitalizations, intensive care unit admissions, and deaths preventable over two consecutive RSV seasons per 1 million RSV vaccine doses administered exceeded estimated numbers of potential vaccine-attributable GBS cases but varied by age and risk group (Table 2). Study limitations included inability to evaluate all risk factors that might be associated with severe RSV disease, uncertainty in VE beyond 4 months postvaccination, and estimates of GBS risk based on few identified cases.

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Recommendations for Use of RSV Vaccines for Prevention of RSV-Associated Disease in Adults Aged ≥60 Years

On June 26, 2024, ACIP recommended a single dose of any FDA-approved RSV vaccine for all adults aged ≥75 years and for adults aged 60–74 years who are at increased risk for severe RSV disease.**** Adults who have previously received RSV vaccine should not receive another dose. Adults aged 60–74 years who are at increased risk include persons with certain chronic medical conditions, persons with moderate or severe immune compromise, and persons living in nursing homes (Box). These recommendations replace the June 2023 shared clinical decision-making recommendation for RSV vaccination for adults aged ≥60 years and apply to all RSV vaccines licensed for adults aged ≥60 years (i.e., Arexvy [GSK], Abrysvo [Pfizer], or mResvia [Moderna]).

Qualified vaccinators, including pharmacists, nurse practitioners, and other providers (based on state and jurisdictional law) may determine patient eligibility for RSV vaccination based on clinical assessment even in the absence of medical documentation of a named risk condition. Patient attestation is sufficient evidence of the presence of a risk factor; vaccinators should not deny RSV vaccination to a person because of lack of documentation. These factors should be considered to optimize patient access, including in administrative procedures, such as reimbursement policies for RSV vaccination.

Rationale for Recommendations

The 2023 shared clinical decision-making RSV vaccination recommendation was made in the setting of uncertainty in some portions of the evidence profile. RCTs of both protein subunit vaccines (GSK Arexvy and Pfizer Abrysvo) were underpowered to demonstrate protection against RSV-associated hospitalization or death, and enrolled few participants who were frail or aged ≥75 years. Although both vaccines were well-tolerated and exhibited an acceptable safety profile, a small number of inflammatory neurologic events, including GBS, were observed after RSV vaccination in clinical trials. Because of the small number of GBS cases in the trials, it was unclear whether they represented an association between

RSV vaccination and GBS or occurred because of chance alone. Acknowledging these uncertainties, in June 2023 ACIP recommended shared clinical decision-making to encourage providers and patients to consider individual risk of RSV disease (*2*); however, shared clinical decision-making has drawbacks. Providers find it confusing and time-consuming to implement (*12*,*13*). After one season of RSV vaccine availability, vaccination coverage among adults with chronic medical conditions has been only modestly higher than that among adults without conditions (*14*). The challenges of shared clinical decision-making, along with the updated evidence on balance of benefits and risks, led ACIP in June 2024 to make an age-based recommendation for adults aged ≥75 years and a risk-based recommendation for those aged 60–74 years. These updated recommendations are intended to maximize RSV vaccination coverage among persons most likely to benefit, by clarifying who is at highest risk and by reducing implementation barriers associated with the previous shared clinical decision-making recommendation (*15*).

ACIP recognized that a risk-based recommendation for adults aged 60–74 years might result in lower RSV vaccination coverage among persons at increased risk compared with an age-based recommendation for this group (*16*). However, ACIP judged that postlicensure safety surveillance suggests a potential increased risk for GBS after protein subunit RSV vaccination (GSK Arexvy and Pfizer Abrysvo), and although no GBS signal was observed after Moderna mResvia vaccination in RCTs, postlicensure safety surveillance has yet to occur. Based on currently available evidence, ACIP concluded that the benefits of RSV vaccination did not clearly outweigh the potential harms in adults aged 60–74 years without risk factors for severe RSV disease. However, ACIP also stressed that research regarding RSV risk factors is ongoing, so providers should continue to have flexibility in offering RSV vaccine to patients they assess to be at increased risk for severe disease even if they do not fall into an explicitly named risk category. As with all vaccines, patients should be informed of the benefits and risks of RSV vaccination (*17*); for protein subunit RSV vaccines, this information includes potential risk for GBS.

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Clinical Guidance

Administration of RSV vaccine with other adult vaccines during the same visit is acceptable. Additional information regarding coadministration and regarding contraindications and precautions is available at https://www.cdc.gov/vaccines/vpd/rsv/hcp/older-adults.html.

Timing of RSV Vaccination

Eligible adults are currently recommended to receive a single dose of RSV vaccine; adults who have already received RSV vaccination should not receive another dose. A single dose provides protection for at least two RSV seasons. The need for additional RSV vaccine doses will be evaluated by ACIP in the future; ACIP will update recommendations as needed.

Eligible adults who have not previously received RSV vaccination may be vaccinated at any time of year, but vaccination will have the most benefit if administered in late summer or early fall, just before the RSV season. In most of the continental United States, this corresponds to vaccination during August–October.

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Reporting of Vaccine Adverse Events

Adverse events after vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS). Reporting of any clinically significant adverse event is encouraged, even if it is uncertain whether the vaccine caused the event. Information on how to submit a report to VAERS is available at https://vaers.hhs.gov/index.html or by telephone at 1-800-822-7967.

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Future RSV Vaccine Policy for Adults

On June 7, 2024, FDA approved use of GSK's Arexvy in adults aged 50–59 years who are at increased risk for RSV-LRTD (*18*). As of June 2024, ACIP judged that insufficient evidence was available to inform a vote on RSV vaccination policy in adults aged 50–59 years who are at increased risk for RSV disease. Before voting on a recommendation in this age group, ACIP expressed that the following items are needed: updated RSV vaccine safety analyses among adults aged ≥60 years, including results from the full 2023–2024 RSV season in the FDA analysis incorporating chart confirmation of GBS

diagnoses; additional data on duration of protection from RSV vaccination and immune response after revaccination; and immunogenicity data in adults with immunocompromise. ACIP will review evidence and vote on RSV vaccination policy in this age group when additional data are available.

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* https://www.cdc.gov/vaccines/imz-managers/coverage/rsvvaxview/index.html

† In this report, RSV vaccine trade names are used to help differentiate between RSV vaccine products because the products have similar generic names. The use of trade names is for identification only and does not indicate endorsement of any specific RSV vaccine product.

§ mResvia is a 1-dose (0.5 mL) mRNA vaccine containing nucleoside-modified mRNA encoding RSV F protein stabilized in the prefusion conformation.

¶ This report summarizes recommendations for nonpregnant adults aged ≥60 years. Recommendations for the use of RSV vaccines in pregnant adults for prevention of RSV-LRTD in infants are available at https://www.cdc.gov/mmwr/volumes/72/wr/mm7241e1.htm

** Through the EtR framework, the Work Group reviewed data on the public health problem caused by RSV, as well as the benefits and harms, value to the target population, acceptability to key stakeholders, feasibility, societal resource use, and equity implications of RSV vaccination.

†† Lower respiratory symptoms included shortness of breath, cough or fever (≥37.8°C [100.0°F]), wheezing, rales, or rhonchi, sputum production, tachypnea, hypoxemia (new oxygen saturation ≤93% or new or increasing use of supplemental oxygen), or pleuritic chest pain for at least 24 hours. In case of inability to fully assess other clinical parameters, radiologic

evidence of pneumonia with RSV infection confirmed by reverse transcription–polymerase chain reaction (RT-PCR) could also be used to confirm RSV-LRTD.

§§ Relative risk is pooled risk of events across phase 2/3 and phase 1 trials. Severe reactogenicity events were defined as grade 3 or higher solicited local reactions (injection site pain, redness, swelling or induration, and ipsilateral axillary swelling or tenderness) or systemic reactions (fatigue, fever, headache, nausea or vomiting, arthralgia, myalgia, and chills) recorded during days 0–7 after vaccination.

¶¶ Relative risk is pooled risk of events across phase 2/3 and phase 1 trials. Serious adverse events were defined as any untoward medical occurrence during all available follow-up time that resulted in death, was life threatening, required inpatient hospitalization or prolongation of existing hospitalization, resulted in persistent disability or incapacity, or was a congenital anomaly or birth defect.

*** VE estimates came from four studies: CDC's VISION Network included separate estimates for those aged ≥60 years with and without immune compromise; both CDC's IVY Network and the Veteran's Health Administration included estimates among the general population of adults aged ≥60 years, regardless of immune compromise status; Medicare estimates included adults aged ≥65 years with end-stage renal disease.

††† Immune compromise was broadly defined. No estimates of VE are currently available specifically among persons with solid organ or hematopoietic stem cell transplant.

§§§ https://www.cdc.gov/vaccinesafety/ensuringsafety/monitoring/vsd/index.html

¶¶¶ GSK Arexvy accounted for 87.7% of RSV vaccine doses in the Vaccine Safety Datalink. If present, an association between Pfizer Abrysvo and ITP with a similar effect size might not have been detected because fewer doses were recorded.

**** ACIP passed two unanimous motions (vote = 11–0) recommending that adults aged ≥75 years receive a single dose of RSV vaccine and recommending that those aged 60–74 years who are at increased risk for severe RSV disease receive a single dose of RSV vaccine.

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TABLE 1. Efficacy of 1 dose of Moderna mResvia vaccine against respiratory syncytial virus–associated lower respiratory tract disease among adults aged ≥60 years during phase 2/3 pivotal efficacy trial — multiple countries, 2021–2024

Efficacy evaluation period	Vaccine efficacy against outcome, % (95% CI)*	
	RSV-associated LRTD with ≥2 symptoms†	RSV-associated LRTD with ≥3 symptoms†
All available follow-up time§	47.4 (35.0 to 57.4)	48.4 (27.9 to 63.1)
14 days–4 months postvaccination¶	78.7 (62.8 to 87.9)	80.9 (50.1 to 92.7)
14 days–12 months postvaccination	56.1 (42.2 to 66.7)	54.9 (30.5 to 70.7)

Efficacy evaluation period	Vaccine efficacy against outcome, % (95% CI)*	
	RSV-associated LRTD with ≥2 symptoms†	RSV-associated LRTD with ≥3 symptoms†
12–24 months postvaccination	30.0 (1.1 to 50.7)	36.0 (–12.6 to 64.3)

Abbreviations: LRTD = lower respiratory tract disease; RSV = respiratory syncytial virus; RT-PCR = reverse transcription–polymerase chain reaction; VE = vaccine efficacy.

* Manufacturer-calculated efficacy based on hazard ratios. Includes events ≥14 days after injection in Moderna's pivotal phase 2/3 trial. For VE against RSV-LRTD with two or more symptoms through 4 months, 95.04% alpha-adjusted CI was provided; for VE against RSV-LRTD with three or more symptoms through 4 months, 95.10% alpha-adjusted CI was provided. For all other VEs reported in the table, 95% CIs were provided. Estimates are available at https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-06-26-28/04-RSV-Adult-Das-508.pdf or are unpublished data provided by Moderna to ACIP Work Group for RSV in Adults, June 2024.

† LRTD symptoms included shortness of breath, cough or fever (≥100.0°F [≥37.8°C]), wheezing or rales or rhonchi, sputum production, tachypnea, hypoxemia (new oxygen saturation ≤93% or new or increasing use of supplemental oxygen), or pleuritic chest pain for ≥24 hours. In case of inability to fully assess other clinical parameters, radiologic evidence of pneumonia with RT-PCR–confirmed RSV infection could also be used to confirm RSV-associated LRTD.

§ Median per-participant postvaccination follow-up time considering all available follow-up time through March 8, 2024 = 18.8 months.

¶ Median per-participant postvaccination follow-up time through November 30, 2022 = 3.7 months; this represents Moderna's primary analysis.

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TABLE 2. Estimated respiratory syncytial virus–associated outcomes preventable over two consecutive respiratory syncytial virus seasons and potential vaccine-attributable cases of Guillain-Barré syndrome per 1 million protein subunit respiratory syncytial virus vaccine doses administered among adults aged ≥60 years* — United States, 2024

Vaccine product/Recipient age and risk groups	No. of estimated RSV-associated outcomes preventable per 1 million protein subunit RSV vaccine doses administered (range)†,§			No. of estimated vaccine-attributable GBS cases (range)¶
	Hospitalizations	ICU admissions	Deaths	
GSK Arexvy				
≥75 yrs	4,283 (2,235–6,957)	630 (329–1,023)	605 (202–1,263)	3 (0–10)††
60–74 yrs; ≥1 chronic medical condition**	2,839 (1,478–4,699)	647 (337–1,071)	246 (83–436)	
60–74 yrs; no chronic medical conditions**	456 (247–731)	72 (39–115)	39 (16–71)	
Pfizer Abrysvo				

Vaccine product/Recipient age and risk groups	No. of estimated RSV-associated outcomes preventable per 1 million protein subunit RSV vaccine doses administered (range)[†,§]			No. of estimated vaccine-attributable GBS cases (range)[¶]
	Hospitalizations	ICU admissions	Deaths	
≥75 years	3,817 (1,927–6,288)	561 (283–924)	539 (190–1,106)	16 (3–29)
60–74 yrs; ≥1 chronic medical condition**	2,530 (1,363–4,224)	577 (311–963)	219 (74–399)	
60–74 yrs; no chronic medical conditions**	406 (219–679)	64 (34–107)	35 (14–63)	

Abbreviations: ACIP = Advisory Committee on Immunization Practices; GBS = Guillain-Barré syndrome; ICU = intensive care unit; RSV = respiratory syncytial virus.

* https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-06-26-28/09-RSV-Adult-Hutton-508.pdf

† Preventable outcomes over two RSV seasons were estimated using data from observational studies and clinical trials. Age- and risk-stratified annual incidence of RSV-associated outcomes was from analyses using the RSV Hospitalization Surveillance Network (RSV-NET) and the Behavioral Risk Factor Surveillance System (https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-02-28-29/03-RSV-Adults-Woodruff-508.pdf). Vaccine effectiveness in preventing outcomes was from CDC's VISION Network during October 1, 2023–March 31, 2024 (https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-06-26-28/07-RSV-Adult-Surie-508.pdf). Waning of vaccine effectiveness over two seasons was from waning of clinical trial efficacy against RSV-associated lower respiratory tract disease.

§ Ranges in estimated preventable disease incorporated uncertainty in incidence of RSV-associated outcomes and in vaccine effectiveness, using Monte Carlo simulation.

¶ Product-specific risk of vaccine-attributable GBS was based on initial results of a Food and Drug Administration self-controlled case series analysis among Medicare beneficiaries aged ≥65 years who received RSV vaccine before October 8, 2023. The analysis compared GBS incidence during a risk interval (days 1–42 postvaccination) with that in a control interval (days 43–90 postvaccination). https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-06-26-28/06-RSV-Adult-Lloyd-508.pdf

** Chronic medical conditions considered in the model included chronic obstructive pulmonary disease, asthma, coronary artery disease, diabetes mellitus, chronic kidney disease, and severe obesity (body mass index ≥40 kg/m^2). No chronic medical conditions was defined as absence of at least one of these conditions.

†† Self-controlled case series analysis estimated vaccine-attributable risk of three (95% CI = −3 to 10) GBS cases. However, the range was truncated at zero for benefit-risk analyses.

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BOX. Risk factors for severe respiratory syncytial virus disease among adults aged 60–74 years*

- Chronic cardiovascular disease (e.g., heart failure, coronary artery disease, or congenital heart disease [excluding isolated hypertension])
- Chronic lung or respiratory disease (e.g., chronic obstructive pulmonary disease, emphysema, asthma, interstitial lung disease, or cystic fibrosis)
- End-stage renal disease or dependence on hemodialysis or other renal replacement therapy
- Diabetes mellitus complicated by chronic kidney disease, neuropathy, retinopathy, or other end-organ damage, or requiring treatment with insulin or sodium-glucose cotransporter-2 (SGLT2) inhibitor
- Neurologic or neuromuscular conditions causing impaired airway clearance or respiratory muscle weakness (e.g., poststroke dysphagia, amyotrophic lateral sclerosis, or muscular dystrophy [excluding history of stroke without impaired airway clearance])
- Chronic liver disease (e.g., cirrhosis)

- Chronic hematologic conditions (e.g., sickle cell disease or thalassemia)
- Severe obesity (body mass index ≥40 kg/m^2)
- Moderate or severe immune compromise[†]
- Residence in a nursing home
- Other chronic medical conditions or risk factors that a health care provider determines would increase the risk for severe disease due to viral respiratory infection (e.g., frailty,[§] situations in which health care providers have concern for presence of undiagnosed chronic medical conditions, or residence in a remote or rural community where transportation of patients with severe RSV disease for escalation of medical care is challenging[¶])

Abbreviation: RSV = respiratory syncytial virus.

* Patient attestation is sufficient evidence of the presence of a risk factor. Vaccinators should not deny RSV vaccination to a person because of lack of medical documentation.

[†] A list of moderately or severely immunocompromising conditions can be found in the COVID-19 vaccination interim clinical considerations. https://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#immunocompromised

[§] Frailty is a multidimensional geriatric syndrome that reflects a state of increased vulnerability to adverse health outcomes. Although no consensus definition exists, one frequently used tool for determination is the Fried frailty phenotype assessment (https://pubmed.ncbi.nlm.nih.gov/11253156/) in which frailty is defined as a clinical syndrome with three or more of the following symptoms present: unintentional weight loss (10 lbs [4.5 kg] in the past year), self-reported exhaustion, weakness (grip strength), slow walking speed, or low physical activity.

[¶] Health care providers caring for adults aged 60–74 years residing in these communities may use clinical judgement, knowledge of local RSV epidemiology, and community incidence of RSV-associated hospitalization to recommend vaccination for a broader population in this age group.

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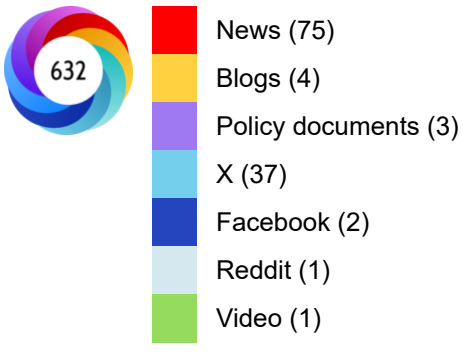
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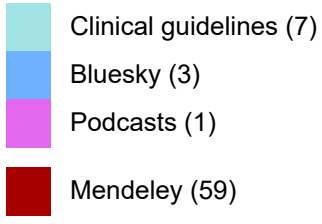
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Yes Partly No

RSV (Respiratory Syncytial Virus) Vaccine:
What You Need to Know

Many vaccine information statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1. Why get vaccinated?

RSV vaccine can prevent lower respiratory tract disease caused by **respiratory syncytial virus (RSV)**. RSV is a common respiratory virus that usually causes mild, cold-like symptoms.

RSV can cause illness in people of all ages but may be especially serious for infants and older adults.

- RSV is the most common cause of hospitalization in U.S. infants. Infants up to 12 months of age (especially those 6 months and younger) and children who were born prematurely, or who have chronic lung or heart disease, or a weakened immune system, are at increased risk of severe RSV disease.
- RSV infections can be dangerous for certain adults. Adults at highest risk for severe RSV disease include older adults, especially those with chronic heart or lung disease, a weakened immune system, certain other chronic medical conditions, or who live in nursing homes.

RSV spreads through direct contact with the virus, such as when droplets from an infected person's cough or sneeze contact your eyes, nose, or mouth. It can also be spread by someone touching a surface, such as a doorknob, that has the virus on it, and then touching your face.

Symptoms of RSV infection may include runny nose, decreased appetite, coughing, sneezing, fever, or wheezing. In very young infants, symptoms of RSV may also include irritability (fussiness), decreased activity, or apnea (pauses in breathing for more than 10 seconds).

Most people recover in a week or two, but RSV can be more serious, resulting in shortness of breath and low oxygen levels. RSV can cause bronchiolitis (inflammation of the small airways in the lung) and pneumonia (infection of the lungs). RSV can also lead to worsening of other medical conditions such as asthma, chronic obstructive pulmonary disease (a chronic disease of the lungs that makes it hard to breathe), or heart failure (when the heart cannot pump enough blood and oxygen throughout the body).

Infants and older adults who get very sick from RSV may need to be hospitalized. Some may even die.

2. RSV vaccine

There are two immunization options available for protecting infants against RSV: maternal vaccine for the pregnant woman or preventive antibodies given to the baby. Only one of these options is needed for most babies to be protected.

CDC recommends a one-time dose of RSV vaccine for **pregnant women from week 32 through week 36 of pregnancy** for the prevention of RSV disease in their infants during the first 6 months of life. This vaccine is recommended to be given from September through January for most of the United States. However, in some locations (for example, the territories, Hawaii, Alaska, and parts of Florida), the timing of vaccination may differ based on the time of year when RSV circulates in the area.

CDC recommends a one-time-dose of RSV vaccine for **everyone 75 years and older** and for **adults 60 through 74 years of age who are at increased risk of severe RSV disease**. Adults 60 through 74 years old who are at increased risk include those with chronic heart or lung disease, a weakened immune system, or certain other chronic medical conditions, and those who are residents of nursing homes.

RSV vaccine may be given at the same time as other vaccines.

CDC U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

3. Talk with your health care provider

Tell your vaccination provider if the person getting the vaccine:

- Has had an **allergic reaction after a previous dose of RSV vaccine**, or has any **severe, life-threatening allergies**

In some cases, your health care provider may decide to postpone RSV vaccination until a future visit.

People with minor illnesses, such as a cold, may be vaccinated. People who are moderately or severely ill should usually wait until they recover before getting RSV vaccine.

Your health care provider can give you more information.

4. Risks of a vaccine reaction

- Pain, redness, and swelling where the shot is given, fatigue (feeling tired), fever, headache, nausea, diarrhea, and muscle or joint pain can happen after RSV vaccination.

Serious neurologic conditions, including Guillain-Barré syndrome (GBS), have been reported after RSV vaccination in some older adults. At this time, an increased risk of GBS following RSV vaccine among persons aged 60 years and older cannot be confirmed or ruled out.

Preterm birth and high blood pressure during pregnancy, including pre-eclampsia, have been reported among pregnant women who received RSV vaccine. It is unclear whether these events were caused by the vaccine.

People sometimes faint after medical procedures, including vaccination. Tell your provider if you feel dizzy or have vision changes or ringing in the ears.

As with any medicine, there is a very remote chance of a vaccine causing a severe allergic reaction, other serious injury, or death.

V-Safe is a safety monitoring system that lets you share with CDC how you, or your dependent, feel after getting RSV vaccine. You can find information and enroll in V-Safe at vsafe.cdc.gov.

5. What if there is a serious problem?

An allergic reaction could occur after the vaccinated person leaves the clinic. If you see signs of a severe allergic reaction (hives, swelling of the face and throat, difficulty breathing, a fast heartbeat, dizziness, or weakness), call **9-1-1** and get the person to the nearest hospital.

For other signs that concern you, call your health care provider.

Adverse reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your health care provider will usually file this report, or you can do it yourself. Visit the VAERS website at www.vaers.hhs.gov or call **1-800-822-7967**. *VAERS is only for reporting reactions, and VAERS staff do not give medical advice.*

6. How can I learn more?

- Ask your health care provider.
- Call your local or state health department.
- Visit the website of the Food and Drug Administration (FDA) for vaccine package inserts and additional information at www.fda.gov/vaccines-blood-biologics/vaccines
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call **1-800-232-4636** (**1-800-CDC-INFO**) or
  - Visit CDC's website at www.cdc.gov/vaccines.

Pneumococcal Conjugate Vaccine: *What You Need to Know*

Many vaccine information statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1. Why get vaccinated?

Pneumococcal conjugate vaccine can prevent **pneumococcal disease**.

Pneumococcal disease refers to any illness caused by pneumococcal bacteria. These bacteria can cause many types of illnesses, including:

- Pneumonia (infection of the lungs)
- Ear infections
- Sinus infections
- Meningitis (infection of the tissue covering the brain and spinal cord)
- Bacteremia (bloodstream infection)

Anyone can get pneumococcal disease, but young children, older adults, and people with certain risk factors are at the highest risk.

Most pneumococcal infections are mild. However, some can result in long-term problems, such as brain damage or hearing loss. Meningitis, bacteremia, and pneumonia caused by pneumococcal disease can lead to death.

2. Pneumococcal conjugate vaccine

Pneumococcal conjugate vaccine helps protect against bacteria that cause pneumococcal disease. There are several pneumococcal conjugate vaccines (PCVs). The specific PCV and number of doses recommended are based on a person's age, vaccination history, and medical status. Your health care provider can help you determine which type of PCV, and how many doses, should be received.

- **Infants and young children** usually need 4 doses of PCV. These doses are recommended at 2, 4, 6, and 12–15 months of age.
- Certain **older children and adolescents** who did not receive the recommended doses as infants or young children need PCV. This depends on age and medical conditions, or other risk factors.
- **Adults 19 through 49 years old** who have not received PCV and have certain medical conditions or other risk factors should receive PCV. Some adults in this group who have already received PCV might be recommended to receive another dose.
- **Adults 50 years or older** who have not previously received PCV should receive a PCV vaccine. Some adults in this group who have already received PCV might be recommended to receive another dose.

3. Talk with your health care provider

Tell your vaccination provider if the person getting the vaccine:

- Has had an **allergic reaction after a previous dose of any type of PCV, or to any vaccine containing diphtheria toxoid** (for example, DTaP), or has any **severe, life-threatening allergies**

In some cases, your health care provider may decide to postpone PCV until a future visit.

People with minor illnesses, such as a cold, may be vaccinated. People who are moderately or severely ill should usually wait until they recover.

Your health care provider can give you more information.

CDC U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

4. Risks of a vaccine reaction

- Redness, swelling, pain, or tenderness where the shot is given; fever; loss of appetite; fussiness (irritability); tiredness; headache; muscle aches; joint pain; or chills can happen after pneumococcal conjugate vaccination.

Young children may be at increased risk for seizures caused by fever after a PCV if it is administered at the same time as inactivated influenza vaccine. Ask your health care provider for more information.

People sometimes faint after medical procedures, including vaccination. Tell your provider if you feel dizzy or have vision changes or ringing in the ears.

As with any medicine, there is a very remote chance of a vaccine causing a severe allergic reaction, other serious injury, or death.

5. What if there is a serious problem?

An allergic reaction could occur after the vaccinated person leaves the clinic. If you see signs of a severe allergic reaction (hives, swelling of the face and throat, difficulty breathing, a fast heartbeat, dizziness, or weakness), call **9-1-1** and get the person to the nearest hospital.

For other signs that concern you, call your health care provider.

Adverse reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your health care provider will usually file this report, or you can do it yourself. Visit the VAERS website at **www.vaers.hhs.gov** or call **1-800-822-7967**. *VAERS is only for reporting reactions, and VAERS staff members do not give medical advice.*

6. The National Vaccine Injury Compensation Program

The National Vaccine Injury Compensation Program (VICP) is a federal program that was created to compensate people who may have been injured by certain vaccines. Claims regarding alleged injury or death due to vaccination have a time limit for filing, which may be as short as two years. Visit the VICP website at **www.hrsa.gov/vaccinecompensation** or call **1-800-338-2382** to learn about the program and about filing a claim.

7. How can I learn more?

- Ask your health care provider.
- Call your local or state health department.
- Visit the website of the Food and Drug Administration (FDA) for vaccine package inserts and additional information at **www.fda.gov/vaccines-blood-biologics/vaccines**.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call **1-800-232-4636** (**1-800-CDC-INFO**) or
  - Visit CDC's website at **www.cdc.gov/vaccines**.

Talking With Your LTC Staff About the COVID-19 Vaccine & Booster

How to Talk With LTC Staff About the Vaccines

- Be empathetic and acknowledge the challenges of the COVID-19 pandemic.
- Show appreciation for everything staff has done. Recognize that they have a hard job, made even more difficult by the pandemic.
- Listen to and hear staff concerns. Respond without judgement or reproach.
- Reinforce their feelings with phrases like, “That is a great question.”
- Speak openly about the vaccine and be confident in your responses.
- Address all staff concerns. If you are asked an unfamiliar question, it’s okay to say, “Let me find more information on that,” but be sure to follow through. There are multiple resources, such as the AHCA/NCAL #GetVaccinated webpage to help answer questions.
- Make eye contact to establish trust and show compassion.
- If possible, hold one-on-one conversations between leadership and staff. They may feel more comfortable asking questions in this setting.
- Provide follow up information and resources after having conversations to reinforce any concerns. Make sure follow-up is tailored to specific issues/concerns of staff.

Key Talking Points with LTC Staff

- We recognize that this has been an extremely challenging time for long term care staff and residents, as well as their loved ones. [Show empathy.]
- It is very encouraging that the U.S. Food and Drug Administration (FDA) has found COVID-19 vaccines to be safe and effective.
- We encourage as many staff as possible to get this vaccine and subsequent boosters to remain up to date.

- The elderly population has a much higher risk for getting very sick, being hospitalized, or dying from COVID-19. The vaccine has been shown to provide a great deal of protection against serious illness due to COVID-19.

- The more of us that get vaccinated, the better we can protect our families and our community against potential outbreaks. We can save lives.

- While we still have to be careful, getting vaccinated will reduce restrictions the pandemic has placed on your daily life. The CDC has also released guidance indicating that individuals who are fully vaccinated can refrain from quarantine if exposed to COVID-19, and staff do not have to be routinely tested.

- The vaccines have gone through testing and clinical trials to ensure they meet the highest safety standards. It also is safe to get if you already had the virus.

- All approved vaccines require two doses. You will need to get both doses to ensure the best results. The second dose will be delivered approximately 21 to 28 days after the first dose.

- Three vaccines – Moderna, Pfizer, and Johnson & Johnson – have also been approved for a booster. The purpose of a booster is to help build back immunity against new coronavirus variants. Booster shots help you maintain protection against the virus.

- Potential side effects are listed on the fact sheet for each vaccine. You will find that these side effects are similar to the potential side effects of the flu shot, but they occur in more people.

- Please feel free to reach back out to us if you have any additional questions. We are here to help make sure you feel comfortable with this process. Frequently asked questions can be found on the AHCA/NCAL GetVaccinated website.

Please visit getvaccinated.us more ideas on promoting staff vaccine uptake and other COVID-19 vaccine resources.

5 Reasons It Is Important for Adults to Get Vaccinated

JULY 1, 2024 • ESPAÑOL

For Everyone

KEY POINTS

Vaccines are the best way to protect yourself and your loved ones from preventable diseases. The vaccines you receive are safe. Vaccines may be required at work, school, for travel or more activities.



1. Vaccines Have Saved Lives for Over 100 Years—But Serious Disease Is Still a Threat

Vaccines have greatly reduced diseases that once routinely harmed or killed babies, children, and adults. People all over the world—including in the United States—still become seriously ill or even die from diseases that vaccines can help prevent. It is important that you stay up to date on recommended vaccines.



A healthcare professional discussing vaccines with a patient.

The protection some vaccines provide can fade over time, and you might need additional vaccine doses (boosters) to maintain protection. For example, adults should receive a tetanus booster every 10 years to protect against infection from dirty wounds. Talk to your health care provider about vaccination to see whether you might have missed any vaccines or need a booster.

2. Vaccines Are the Best Way to Protect Yourself and Your Loved Ones from Preventable Disease

Did you know that vaccines are the best way to protect yourself from certain preventable diseases? Vaccines help your body create protective antibodies—proteins that help it fight off infections.



Adult family members together with their child.

By getting vaccinated, you can protect yourself and also avoid spreading preventable diseases to other people in your community. Some people cannot get certain vaccines because they are too young or too old or they have a weakened immune system or other serious health condition. Those people are less likely to catch a preventable disease when you and others around them are vaccinated against it. Help protect yourself and the people you love by staying up to date on recommended vaccinations.

3. Vaccines Can Prevent Serious Illness

Some vaccine-preventable diseases can have serious complications or even lead to later illnesses. For them, vaccination provides protection not only against the disease itself but also against the dangerous complications or consequences that it can bring. Some examples:



An adult man showing his band-aid after getting a vaccine.

- Seasonal influenza (flu) is a respiratory virus that sickens tens of millions of people every year in the United States. The annual flu vaccine helps you avoid infection and reduces your chances of being hospitalized or dying if you do become infected. Flu vaccine also protects you from flu-related pneumonia and flu-related heart attacks or stroke—complications that can affect anyone but are especially dangerous for persons with diabetes or chronic heart or lung conditions.
- Hepatitis B is a serious, potentially deadly infection of the liver caused by the hepatitis B virus (HBV). There is no cure, but vaccination prevents HBV infection as well as the chronic liver damage and cancer that hepatitis B can cause.
- Human papillomavirus (HPV) is a leading cause of cervical cancer and can cause other cancers in both women and men. HPV vaccine keeps you from being infected with the virus or passing it to others, protecting you and them from the immediate effects of the virus as well as from the various cancers it can trigger.

4. The Vaccines You Receive Are Safe

Vaccine safety is a high priority. CDC and other experts carefully review safety data before recommending any vaccine, then continually monitor vaccine safety after approval.



Three young adults after getting their vaccines.

Vaccines can have side effects, but most people experience only mild side effects—if any—after vaccination. The most common side effects are fever, tiredness, body aches, or redness, swelling, and tenderness where the shot was given. Mild reactions usually go away on their own within a few days. Serious or long-lasting side effects are extremely rare, and vaccine safety is continually monitored.

5. Vaccines May Be Required

Certain vaccines are required for school, work, travel, and more. Students, military personnel, and residents of rehabilitation or care centers must be vaccinated against diseases that circulate in close quarters. Health care workers and others whose job puts them at risk of catching and spreading preventable diseases need to be vaccinated against them.



A group of healthcare workers gather to share information.

And, of course, vaccination is required before travel to many places around the world. Because vaccination protects you and those around you, vaccines can be required for everyday activities as well as for extraordinary situations. It is important that you stay up to date on recommended vaccinations.

Resources

Vaccine Resources

View, download, or print communication resources to learn about vaccination and specific vaccines.

SOURCES

CONTENT SOURCE:
National Center for Immunization and Respiratory Diseases (NCIRD); Immunization Services Division

Recommended Adult Immunization Schedule
for ages 19 years or older

UNITED STATES
2025

Vaccines in the Adult Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
COVID–19 vaccine	1vCOV–mRNA	Comirnaty/Pfizer–BioNTech COVID–19 Vaccine Spikevax/Moderna COVID–19 Vaccine
	1vCOV–aPS	Novavax COVID–19 Vaccine
Haemophilus influenzae type b vaccine	Hib	ActHIB, Hiberix, PedvaxHIB
Hepatitis A vaccine	HepA	Havrix, Vaqta
Hepatitis A and hepatitis B vaccine	HepA–HepB	Twinrix
Hepatitis B vaccine	HepB	Engerix–B, Heplisav–B, PreHevbrio, Recombivax HB
Human papillomavirus vaccine	HPV	Gardasil 9
Influenza vaccine (inactivated, egg-based)	IIV3	Multiple
	aIIV3	Fluad
	HD–IIV3	Fluzone High–Dose
Influenza vaccine (inactivated, cell–culture)	ccIIV3	Flucelvax
Influenza vaccine (recombinant)	RIV3	Flublok
Influenza vaccine (live, attenuated)	LAIV3	FluMist
Measles, mumps, and rubella vaccine	MMR	M–M–R II, Priorix
Meningococcal serogroups A, C, W, Y vaccine	MenACWY–CRM	Menveo
	MenACWY–TT	MenQuadfi
Meningococcal serogroup B vaccine	MenB–4C	Bexsero
	MenB–FHbp	Trumenba
Meningococcal serogroup A, B, C, W, Y vaccine	MenACWY–TT/ MenB–FHbp	Penbraya
Mpox vaccine	Mpox	Jynneos
Pneumococcal conjugate vaccine	PCV15	Vaxneuvance
	PCV20	Prevnar 20
	PCV21	Capvaxive
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23
Poliovirus vaccine (inactivated)	IPV	Ipol
Respiratory syncytial virus vaccine	RSV	Abrysvo, Arexvy, mResvia
Tetanus and diphtheria vaccine	Td	Tenivac
Tetanus, diphtheria, and acellular pertussis vaccine	Tdap	Adacel, Boostrix
Varicella vaccine	VAR	Varivax
Zoster vaccine, recombinant	RZV	Shingrix

*Administer recommended vaccines if vaccination history is incomplete or unknown.
Do not restart or add doses to vaccine series if there are extended intervals between doses.
The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

Revised 07/02/2025 (as amended on April 27, 2026 to add the ACIP's April 2025 RSV recommendation as adopted by HHS)

How to use the adult immunization schedule

1. Determine recommended vaccinations by age **(Table 1)**
2. Assess need for additional recommended vaccinations by medical condition or other indication **(Table 2)**
3. Review vaccine types, dosing frequencies and intervals, and considerations for special situations **(Notes)**
4. Review contraindications and precautions for vaccine types **(Appendix)**

Report

- Suspected cases of reportable vaccine–preventable diseases or outbreaks to the local or state health department
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System at www.vaers.hhs.gov or 800-822-7967

Questions or comments

Contact www.cdc.gov/cdc–info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays.

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/hcp/imz-schedules/app.html.

Helpful information

- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/acip-recs/hcp/vaccine-specific/
- ACIP Shared Clinical Decision–Making Recommendations: www.cdc.gov/acip/vaccine-recommendations/shared-clinical-decision-making.html
- *General Best Practice Guidelines for Immunization* www.cdc.gov/vaccines/hcp/imz-best-practices/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/current-vis/index.html
- Manual for the Surveillance of Vaccine–Preventable Diseases (including case identification and outbreak response): www.cdc.gov/surv-manual/php/index.html

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Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2025

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
COVID–19	1 or more doses of 2024–2025 vaccine (See Notes)			2 or more doses of 2024-2025 vaccine (See Notes)
Influenza inactivated (IIV3, ccIIV3) **Influenza recombinant** (RIV3)	1 dose annually			1 dose annually (HD–IIV3, RIV3, or aIIV3 preferred)
Influenza inactivated (aIIV3; HD–IIV3) **Influenza recombinant** (RIV3)	Solid organ transplant (See Notes)			
Influenza live, attenuated (LAIV3)	1 dose annually			
Respiratory syncytial virus (RSV)	Seasonal administration during pregnancy (See Notes)		50 through 74 years (See Notes)	≥75 years
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (See Notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			For health care personnel (See Notes)
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (See Notes)		2 doses	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal (PCV15, PCV20, PCV21, PPSV23)			See Notes	
				See Notes
Hepatitis A (HepA)	2, 3, or 4 doses depending on vaccine			
Hepatitis B (HepB)	2, 3, or 4 doses depending on vaccine or condition			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication (See Notes for booster recommendations)			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication (See Notes for booster recommendations)			
	19 through 23 years			
***Haemophilus influenzae* type b** (Hib)	1 or 3 doses depending on indication			
Mpox	2 doses			
Inactivated poliovirus (IPV)	Complete 3-dose series if incompletely vaccinated. Self–report of previous doses acceptable (See Notes)			

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of immunity

Recommended vaccination for adults with an additional risk factor or another indication

Recommended vaccination based on shared clinical decision–making

No Guidance/ Not Applicable

Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2025

Always use this table in conjunction with Table 1 and the Notes that follow. Medical conditions or indications are often not mutually exclusive. If multiple medical conditions or indications are present, refer to guidance in all relevant columns. See Notes for medical conditions or indications not listed.

VACCINE	Pregnancy	Immunocompromised (excluding HIV infection)	HIV infection CD4 percentage and count		Men who have sex with men	Asplenia, complement deficiency	Heart or lung disease	Kidney failure, End–stage renal disease or on dialysis	Chronic liver disease; alcoholism[a]	Diabetes	Health care Personnel[b]
			<15% or <200/mm³	≥15% and ≥200/mm³							
COVID–19		See Notes									
Influenza inactivated Influenza recombinant		Solid organ transplant (See Notes)	1 dose annually								
LAIV3					1 dose annually if age 19–49 years		1 dose annually if age 19–49 years				
RSV	Seasonal administration (See Notes)	See Notes				See Notes			Liver disease (See Notes)	See Notes	
Tdap or Td	Tdap: 1 dose each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	*										
VAR	*			See Notes							
RZV		See Notes									
HPV	*	3-dose series if indicated									
Pneumococcal											
HepA											
Hep B	See Notes									Age ≥ 60 years	
MenACWY											
MenB											
Hib		HSCT: 3 doses[c]				Asplenia: 1 dose					
Mpox	See Notes				See Notes						See Notes
IPV		Complete 3-dose series if incompletely vaccinated. Self–report of previous doses acceptable (See Notes)									

- Recommended for all adults who lack documentation of vaccination, **OR** lack evidence of immunity
- Not recommended for all adults, but recommended for some adults based on either age **OR** increased risk for or severe outcomes from disease
- Recommended based on shared clinical decision–making
- Recommended for all adults, and additional doses may be necessary based on medical condition or other indications. See Notes.
- Precaution: Might be indicated if benefit of protection outweighs risk of adverse reaction
- Contraindicated or not recommended *Vaccinate after pregnancy, if indicated
- No Guidance/ Not Applicable

a. Precaution for LAIV3 does not apply to alcoholism.

b. See Notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations.

c. Hematopoietic stem cell transplant.

Notes

Recommended Adult Immunization Schedule for Ages 19 Years or Older, United States, 2025

For vaccination recommendations for persons ages 18 years or younger, see the Recommended Child and Adolescent Immunization Schedule, 2025: www.cdc.gov/vaccines/hcp/imz-schedules/child-adolescent-age.html

Additional Information

- For calculating intervals between doses, 4 weeks = 28 days. Intervals of ≥4 months are determined by calendar months.
- Within a number range (e.g., 12–18), a dash (–) should be read as "through."
- Vaccine doses administered ≤4 days before the minimum age or interval are considered valid. Doses of any vaccine administered ≥5 days earlier than the minimum age or minimum interval should not be counted as valid and should be repeated. **The repeat dose should be spaced after the invalid dose by the recommended minimum interval.** For further details, see Table 3–2, Recommended and minimum ages and intervals between vaccine doses, in *General Best Practice Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/imz-best-practices/timing-spacing-immunobiologics.html.
- Information on travel vaccination requirements and recommendations is available at www.cdc.gov/travel/.
- For vaccination of persons with immunodeficiencies, see Table 8–1, Vaccination of persons with primary and secondary immunodeficiencies, in *General Best Practice Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/imz-best-practices/altered-immunocompetence.html.
- For information about vaccination in the setting of a vaccine–preventable disease outbreak, contact your state or local health department.
- The National Vaccine Injury Compensation Program (VICP) is a no–fault alternative to the traditional legal system for resolving vaccine injury claims. All vaccines included in the adult immunization schedule except PPSV23, RSV, RZV, Mpox, and COVID–19 vaccines are covered by the National Vaccine Injury Compensation Program (VICP). Mpox and COVID–19 vaccines are covered by the Countermeasures Injury Compensation Program (CICP). For more information, see www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cicp.

COVID–19 vaccination

Routine vaccination

Age 19–64 years (not pregnant)

- **Unvaccinated:**
  - 1 dose 2024–25 Moderna or Pfizer-BioNTech
  - 2 doses 2024–25 Novavax at 0, 3–8 weeks
- **Previously vaccinated before 2024–25 vaccine with:**
  - **1 or more doses Moderna or Pfizer-BioNTech:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech at least 8 weeks after the most recent dose.
  - **1 dose Novavax:** 1 dose 2024–25 Novavax 3–8 weeks after most recent dose. If more than 8 weeks after most recent dose, administer 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech.
  - **2 or more doses Novavax:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech at least 8 weeks after the most recent dose.
  - **1 or more doses Janssen:** 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech.

Age 65 years and older

- **Unvaccinated:** follow recommendations above for unvaccinated persons ages 19–64 years **and** administer dose 2 of 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months).
- **Previously vaccinated before 2024–25 vaccine:** follow recommendations above for previously vaccinated persons ages 19–64 years **and** administer dose 2 of 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months).

Special situations

Persons who are moderately or severely immunocompromised. Use vaccine from the same manufacturer for all doses in the initial vaccination series.

- **Unvaccinated:**
  - 4 doses (**3-dose initial series 2024–25 Moderna** at 0, 4 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses.*
  - 4 doses (**3-dose initial series 2024–25 Pfizer-BioNTech** at 0, 3 weeks, and at least 4 weeks after dose 2, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses.*
  - 3 doses (**2-dose initial series 2024–25 Novavax** at 0, 3 weeks, followed by 1 dose Moderna or Novavax or Pfizer-BioNTech 6 months later [minimum interval 2 months]). May administer additional doses.*
- **Incomplete initial vaccination series before 2024–25 vaccine:**
  - **Previous vaccination with Moderna**
    - **1 dose Moderna:** complete initial series with 2 doses 2024–25 Moderna at least 4 weeks apart (administer dose 1 4 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*
    - **2 doses Moderna:** complete initial series with 1 dose 2024–25 Moderna at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*

COVID-19 vaccination - *continued*

- **Previous vaccination with Pfizer-BioNTech**
  - **1 dose Pfizer-BioNTech:** complete initial series with 2 doses 2024–25 Pfizer-BioNTech at least 4 weeks apart (administer dose 1 3 weeks after most recent dose), followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*
  - **2 doses Pfizer-BioNTech:** complete initial series with 1 dose 2024–25 Pfizer-BioNTech at least 4 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*
- **Previous vaccination with Novavax**
  - **1 dose Novavax:** complete initial series with 1 dose 2024–25 Novavax at least 3 weeks after most recent dose, followed by 1 dose 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months later (minimum interval 2 months). May administer additional doses.*

- **Completed the initial vaccination series before 2024–25 vaccine with:**
  - **3 or more doses Moderna or 3 or more doses Pfizer-BioNTech:** 2 doses 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses.*
  - **2 or more doses Novavax:** 2 doses 2024–25 Moderna or Novavax or Pfizer-BioNTech 6 months apart (minimum interval 2 months). Administer dose 1 at least 8 weeks after the most recent dose. May administer additional doses.*

***Additional doses of 2024–25 COVID-19 vaccine for moderately or severely immunocompromised:** based on shared clinical decision-making and administered at least 2 months after the most recent dose (see Table 2 at www.cdc.gov/covid/hcp/vaccine-considerations/immunocompromised.html#heading-afhenymeej). For description of moderate and severe immunocompromising conditions and treatment, see www.cdc.gov/covid/hcp/vaccine-considerations/immunocompromised.html#heading-ijufqampvj.

Unvaccinated persons have never received any COVID-19 vaccine doses. There is no preferential recommendation for the use of one COVID-19 vaccine over another when more than one recommended age-appropriate vaccine is available. Administer an age-appropriate COVID-19 vaccine product for each dose.

For information about interchangeability of COVID-19 vaccines, see www.cdc.gov/covid/hcp/vaccine-considerations/implementation.html#cdc_clinical_guidance_prevent_key-interchangeability-of-covid-19-vaccines.

Current COVID-19 schedule and dosage formulation available at www.cdc.gov/covid/hcp/vaccine-considerations/index.html. For more information on Emergency Use Authorization (EUA) indications for COVID-19 vaccines, see www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines.

Haemophilus influenzae type b vaccination

Special situations

- **Anatomical or functional asplenia (including sickle cell disease):** 1 dose if previously did not receive Hib vaccine
  - **Elective splenectomy:** 1 dose preferably at least 14 days before splenectomy
- **Hematopoietic stem cell transplant (HSCT):** 3-dose series 4 weeks apart starting 6–12 months after successful transplant, regardless of Hib vaccination history

Hepatitis A vaccination

Routine vaccination

- **Any person who is not fully vaccinated and requests vaccination** (identification of risk factor not required): complete 2-dose series HepA (Havrix 6–12 months apart or Vaqta 6–18 months apart [minimum interval: 6 months]) or 3-dose series HepA–HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2 = 4 weeks; dose 2 to dose 3 = 5 months])

Special situations

- **Any person who is not fully vaccinated and who is at risk for hepatitis A virus infection or severe disease from hepatitis A virus infection:** complete 2-dose series HepA or 3-dose series HepA–HepB as above. Risk factors include:
  - **Chronic liver disease** including persons with hepatitis B, hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase (ALT) or aspartate aminotransferase (AST) level greater than twice the upper limit of normal.
  - **HIV infection**
  - **Men who have sex with men**
  - **Injection or noninjection drug use**
  - **Persons experiencing homelessness**
  - **Work with hepatitis A virus** in research laboratory or with nonhuman primates with hepatitis A virus infection
  - **Travel in countries with high or intermediate endemic hepatitis A:** HepA–HepB (Twinrix) may be administered on an accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months.
  - **Close, personal contact with international adoptee** (e.g., household or regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A: dose 1 as soon as adoption is planned; preferably at least 2 weeks before adoptee's arrival.

Hepatitis A vaccination - *continued*

- **Pregnancy** if at risk for infection or severe outcome from infection during pregnancy
- **Settings for exposure,** including health care setting serving persons who use injection or noninjection drugs, or group homes and nonresidential day care facilities for developmentally disabled persons (individual risk factor screening not required)

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Hepatitis B vaccination

Routine vaccination

- **Age 19 through 59 years:** complete a 2- or 3- or 4-dose series
  - 2-dose series only applies when 2 doses of Heplisav–B are used at least 4 weeks apart
  - 3-dose series Engerix–B, PreHevbrio*, or Recombivax HB at 0, 1, 6 months (minimum intervals: dose 1 to dose 2 = 4 weeks; dose 2 to dose 3 = 8 weeks; dose 1 to dose 3 = 16 weeks)
  - 3-dose series HepA–HepB (Twinrix) at 0, 1, 6 months (minimum intervals: dose 1 to dose 2 = 4 weeks; dose 2 to dose 3 = 5 months)
  - 4-dose series HepA–HepB (Twinrix) accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months

***Note:** PreHevbrio is not recommended in pregnancy due to lack of safety data in pregnant women.

- **Age 60 years or older without** known risk factors for hepatitis B virus infection **may** receive a HepB vaccine series.
- **Age 60 years or older with** known risk factors for hepatitis B virus infection **should** receive a HepB vaccine series.
- **Any adult age 60 years of age or older** who requests HepB vaccination **should** receive a HepB vaccine series.
  - **Risk factors for hepatitis B virus infection include:**
    - **Chronic liver disease** including persons with hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase (ALT) or aspartate aminotransferase (AST) level greater than twice the upper limit of normal.
    - **HIV infection**
    - **Sexual exposure risk** e.g., sex partners of hepatitis B surface antigen (HBsAg)–positive persons, sexually active persons not in mutually monogamous relationships, persons seeking evaluation or treatment for a sexually transmitted infection, men who have sex with men
    - **Current or recent injection drug use**
    - **Percutaneous or mucosal risk for exposure to blood** e.g., household contacts of HBsAg–positive persons, residents and staff of facilities for developmentally disabled persons, health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood–contaminated body fluids, persons on maintenance dialysis (including in–center or home hemodialysis and peritoneal dialysis), persons who are predialysis, and patients with diabetes**
    - **Incarceration**
    - **Travel in countries with high or intermediate endemic hepatitis B**

****Age 60 years or older with diabetes:** Based on shared clinical decision making, 2-, 3-, or 4-dose series as above.

Special situations

- **Patients on dialysis:** complete a 3- or 4-dose series
  - 3-dose series Recombivax HB at 0, 1, 6 months (Note: Use Dialysis Formulation 1 mL = 40 mcg)
  - 4-dose series Engerix–B at 0, 1, 2, and 6 months (Note: Use 2 mL dose instead of the normal adult dose of 1 mL)
- **Age 20 years or older with an immunocompromising condition:** complete a 2- or 3- or 4-dose series.
  - 3-dose series Recombivax HB at 0,1, 6 months (Note: Use Dialysis Formulation 1ml = 40 mcg)
  - 4-dose series Engerix–B at 0,1,2, and 6 months (Note: Use 2mL dose instead of the normal adult dose of 1mL)
  - 2-doses series Heplisav–B at 0, 1 months
  - 3-dose series PreHevbrio* at 0,1, 6 months

Human papillomavirus vaccination

Routine vaccination

- **All persons through age 26 years:** complete 2– or 3-dose series depending on age at initial vaccination or condition.
  - **Age 9–14 years at initial vaccination and received 1 dose or 2 doses less than 5 months apart:** 1 additional dose
  - **Age 9–14 years at initial vaccination and received 2 doses at least 5 months apart:** HPV vaccination series complete, no additional dose needed
  - **Age 15 years or older at initial vaccination:** 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2 = 4 weeks; dose 2 to dose 3 = 12 weeks; dose 1 to dose 3 = 5 months; repeat dose if administered too soon)
- No additional dose recommended when any HPV vaccine series of any valency has been completed using the recommended dosing intervals.

Shared clinical decision–making

- **Adults age 27–45 years:** Based on shared clinical decision–making, complete a 2-dose series (if initiated age 9–14 years) or 3-dose series (if initiated ≥15 years).

For additional information on shared clinical decision–making for HPV; see www.cdc.gov/vaccines/hcp/admin/downloads/isd–job–aid–scdm–hpv–shared–clinical–decision–making–hpv.pdf

Special situations

- **Age ranges recommended above for routine and catch–up vaccination or shared clinical decision–making also apply in special situations**
  - **Immunocompromising conditions, including HIV infection**: complete 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
  - **Pregnancy**: Pregnancy testing is not needed before vaccination. HPV vaccination is not recommended until after pregnancy. No intervention needed if inadvertently vaccinated while pregnant.

Influenza vaccination

Routine vaccination

- **Age 19 years or older:** 1 dose any influenza vaccine appropriate for age and health status annually
  - **Solid organ transplant recipients aged 19 through 64 years receiving immunosuppressive medications:** HD–IIV3 and aIIV3 are acceptable options. No preference over other age–appropriate IIV3 or RIV3.
  - **Age 65 years or older:** Any one of HD-IIV3, RIV3, or aIIV3 is preferred. If none of these three vaccines is available, then any other age–appropriate influenza vaccine should be used.
- For the 2024–25 season, see www.cdc.gov/mmwr/volumes/73/rr/rr7305a1.htm
- For the 2025–26 season, see the 2025–26 ACIP influenza vaccine recommendations.

Special situations

- **Close contacts (e.g., caregivers, healthcare workers) of severely immunosuppressed persons who require a protected environment:** should not receive LAIV3. If LAIV3 is given, they should avoid contact with/caring for such immunosuppressed persons for 7 days after vaccination.

Note: Persons with an egg allergy can receive any influenza vaccine (egg-based or non–egg based) appropriate for age and health status.

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Measles, mumps, and rubella vaccination

Routine vaccination

- **No evidence of immunity to measles, mumps, or rubella:** 1 dose
  - **Evidence of immunity:** Born before 1957 (except for health care personnel, see below), documentation of receipt of MMR vaccine, laboratory evidence of immunity or disease (diagnosis of disease without laboratory confirmation is not evidence of immunity)

Special situations

- **Pregnancy with no evidence of immunity to rubella:** MMR contraindicated during pregnancy; after pregnancy (before discharge from health care facility): 1 dose
- **Nonpregnant women of childbearing age with no evidence of immunity to rubella:** 1 dose
- **HIV infection with CD4 percentages ≥15% and CD4 count ≥200 cells/mm³ for at least 6 months and no evidence of immunity to measles, mumps, or rubella:** complete 2-dose series at least 4 weeks apart; MMR contraindicated for HIV infection with CD4 percentage <15% or CD4 count <200 cells/mm³
- **Severe immunocompromising conditions:** MMR contraindicated
- **Students in postsecondary educational institutions, international travelers, and household or close, personal contacts of immunocompromised persons with no evidence of immunity to measles, mumps, or rubella:** complete 2-dose series at least 4 weeks apart if previously did not receive any doses of MMR or 1 dose if previously received 1 dose MMR
- **In mumps outbreak settings,** for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a7.htm

Measles, mumps, and rubella vaccination *- continued*

- **Health care personnel:**
  - **Born before 1957 with no evidence of immunity to measles, mumps, or rubella:** Consider 2-dose series at least 4 weeks apart for protection against measles or mumps or 1 dose for protection against rubella.
  - **Born in 1957 or later with no evidence of immunity to measles, mumps, or rubella:** complete 2-dose series at least 4 weeks apart for protection against measles or mumps or at least 1 dose for protection against rubella.

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Meningococcal vaccination

Special situations for MenACWY

- **Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:** 2-dose primary series Menveo or MenQuadfi at least 8 weeks apart; 1 booster dose 5 years after primary series and every 5 years if risk remains
- **Travel in countries with hyperendemic or epidemic meningococcal disease, or for microbiologists routinely exposed to *Neisseria meningitidis*:** 1 dose Menveo or MenQuadfi; 1 booster dose 5 years after primary series and every 5 years if risk remains
- **First–year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:** 1 dose Menveo or MenQuadfi

Note: MenACWY vaccines may be administered simultaneously with MenB vaccines if indicated, but at a different anatomic site, if feasible.

For MenACWY recommendations **in outbreak setting** (e.g., in community or organizational settings, or among men who have sex with men) and **additional meningococcal vaccination** information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm

Shared clinical decision–making for MenB

- **Adolescents and young adults age 16–23 years (age 16–18 years preferred)* not at increased risk for meningococcal disease:** based on shared clinical decision–making
  - **Bexsero or Trumenba (use same brand for all doses):** 2-dose series at least 6 months apart (if dose 2 is administered earlier than 6 months, administer dose 3 at least 4 months after dose 2)

*To optimize rapid protection (e.g., for students starting college in less than 6 months), a 3-dose series (0, 1–2, 6 months) may be administered.

For additional information on shared clinical decision–making for MenB, see www.cdc.gov/vaccines/media/pdfs/2025/03/2024-isd-job-aid-scdm-menb-508-remediated.pdf

Special situations for MenB

- **Anatomical or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use, or microbiologists routinely exposed to *Neisseria meningitidis*.**
  - **Bexsero or Trumenba (use same brand for all doses including booster doses):** 3-dose primary series at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed; if dose 3 is administered earlier than 4 months after dose 2, a 4th dose should be administered at least 4 months after dose 3).
  - **Booster doses:** 1 booster dose one year after primary series and every 2–3 years if risk remains
- **Pregnancy:** Delay MenB until after pregnancy due to lack of safety data in pregnant women. May administer if at increased risk and vaccination benefits outweigh potential risks.

For MenB recommendations **in outbreak setting** (e.g., in community or organizational settings, or among men who have sex with men) and **additional meningococcal vaccination** information, see ww.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Note: MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.

Adults may receive a single dose of Penbraya (MenACWY–TT/MenB–FHbp) as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day. For adults not at increased risk, if Penbraya is used for dose 1 MenB, then MenB–FHbp (Trumenba) should be administered for dose 2 MenB. For adults at increased risk of meningococcal disease, Penbraya may be used for additional MenACWY and MenB doses (including booster doses) if both would be given on the same clinic day **and** at least 6 months have elapsed since most recent Penbraya dose.

Mpox vaccination

Special situations

- **Any person at risk for mpox infection:** complete 2-dose series, 28 days apart.

  Risk factors for mpox infection include:
  - Persons who are gay or bisexual, and other MSM, transgender or nonbinary people who in the past 6 months have had:
    - A new diagnosis of at least 1 sexually transmitted disease
    - More than 1 sex partner
    - Sex at a commercial sex venue
    - Sex in association with a large public event in a geographic area where mpox transmission is occurring
  - Persons who are sexual partners of the persons described above
  - Persons who anticipate experiencing any of the situations described above
- **Pregnancy:** There is currently no ACIP recommendation for Jynneos use in pregnancy due to lack of safety data in pregnant women. Pregnant women with any risk factor described above may receive Jynneos.
- **Health care personnel:** Vaccination to protect against occupational risk in healthcare settings is not routinely recommended.

  For detailed information, see www.cdc.gov/monkeypox/hcp/vaccine-considerations/.

Pneumococcal vaccination

Routine vaccination

- **Age 50 years or older who have:**
  - **Not previously received a dose of PCV13, PCV15, PCV20, or PCV21 or whose previous vaccination history is unknown:** 1 dose PCV15 or 1 dose PCV20 or 1 dose PCV21
    - If PCV15 is used, administer 1 dose PPSV23 at least 1 year after the PCV15 dose (may use minimum interval of 8 weeks for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak).
  - **Previously received only PCV7:** follow the recommendation above.
  - **Previously received only PCV13:** 1 dose PCV20 or 1 dose PCV21 at least 1 year after the last PCV13 dose
  - **Previously received only PPSV23:** 1 dose PCV15 or 1 dose PCV20 or 1 dose PCV21, at least 1 year after the last PPSV23 dose.
    - If PCV15 is used, no additional PPSV23 doses are recommended.
  - **Previously received both PCV13 and PPSV23 but NO PPSV23 was received at age 65 years or older:** 1 dose PCV20 or 1 dose PCV21 at least 5 years after the last pneumococcal vaccine dose.
  - **Previously received both PCV13 and PPSV23, AND PPSV23 was received at age 65 years or older:** Based on shared clinical decision–making, 1 dose of PCV20 or 1 dose of PCV21 at least 5 years after the last pneumococcal vaccine dose.

Special situations

- **Age 19–49 years with certain underlying medical conditions or other risk factors** who have:**
  - **Not previously received a PCV13, PCV15, PCV20, or PCV21 or whose previous vaccination history is unknown:** 1 dose PCV15 or 1 dose PCV20 or 1 dose PCV21
    - If PCV15 is used, administer 1 dose PPSV23 at least 1 year after the PCV15 dose (may use minimum interval of 8 weeks for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak).
  - **Previously received only PCV7:** follow the recommendation above.
  - **Previously received only PCV13:** 1 dose PCV20 or 1 dose PCV21 at least 1 year after the last PCV13 dose
  - **Previously received only PPSV23:** 1 dose PCV15 or 1 dose PCV20 or 1 dose PCV21, at least 1 year after the last PPSV23 dose.
    - If PCV15 is used, no additional PPSV23 doses are recommended.
  - **Previously received PCV13 and 1 dose of PPSV23:**
    - Cochlear implant, cerebrospinal fluid leak, or an immunocompromising condition*: 1 dose PCV20 or 1 dose PCV21 at least 5 years after the last pneumococcal vaccine dose.
    - Alcoholism, chronic heart/liver/lung disease, cigarette smoking, or diabetes mellitus: no additional PCV or PPSV23 doses recommended at this time. Review pneumococcal recommendations when age 50 years or older.

Adults aged 19 years and older who have received PCV20 or PCV21: no additional pneumococcal vaccine dose recommended.

Pregnancy: no recommendation for PCV or PPSV23 due to limited data. Summary of existing data on pneumococcal vaccination during pregnancy can be found at www.cdc.gov/mmwr/volumes/72/rr/rr7203a1.htm.

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Pneumococcal vaccination - *continued*

PPSV23 not available: adults aged 19 years or older who received PCV15 but have not yet completed PPSV23 series, can complete the series with either 1 dose of PCV20 or 1 dose of PCV21 if they no longer have access to PPSV23.

For guidance on determining which pneumococcal vaccines a patient needs and when, please refer to the mobile app which can be downloaded here: www.cdc.gov/pneumococcal/hcp/vaccine-recommendations/app.html.

***Note:** Immunocompromising conditions include chronic renal failure, nephrotic syndrome, immunodeficiencies, iatrogenic immunosuppression, generalized malignancy, HIV infection, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplant, congenital or acquired asplenia, or sickle cell disease or other hemoglobinopathies.

****Note:** Underlying medical conditions or other risk factors include alcoholism, chronic heart/liver/lung disease, chronic renal failure, cigarette smoking, cochlear implant, congenital or acquired asplenia, CSF leak, diabetes mellitus, generalized malignancy, HIV infection, Hodgkin disease, immunodeficiencies, iatrogenic immunosuppression, leukemia, lymphoma, multiple myeloma, nephrotic syndrome, solid organ transplant, or sickle cell disease or other hemoglobinopathies.

Poliovirus vaccination

Routine vaccination

- **Adults known or suspected to be unvaccinated or incompletely vaccinated:** administer remaining doses (1, 2, or 3 IPV doses) to complete a 3-dose primary series.* Unless there are specific reasons to believe they were not vaccinated, most adults who were born and raised in the United States can assume they were vaccinated against polio as children.

Special situations

- **Adults at increased risk for exposure to poliovirus who completed primary series*:** may administer one lifetime IPV booster.

***Note:** Complete primary series consists of at least 3 doses of IPV or trivalent oral poliovirus vaccine (tOPV) in any combination.

For detailed information, see www.cdc.gov/polio/hcp/vaccine-considerations/index.html

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Respiratory syncytial virus vaccination

Routine vaccination

- **Pregnant women of any age:**
  - **Pregnant at 32 weeks 0 days through 36 weeks and 6 days gestation from September through January in most of the continental United States*:** 1 dose **Abrysvo**. Administer RSV vaccine regardless of previous RSV infection.
  - Either maternal RSV vaccination with Abrysvo or infant immunization with nirsevimab (RSV monoclonal antibody) is recommended to prevent severe respiratory syncytial virus disease in infants.
  - **All other pregnant women:** RSV vaccine not recommended
  - **Subsequent pregnancies:** additional doses not recommended. No data are available to inform whether additional doses are needed in subsequent pregnancies. Infants born to pregnant women who received RSV vaccine during a previous pregnancy should receive nirsevimab.

***Note:** Providers in jurisdictions with RSV seasonality that differs from most of the continental United States (e.g., Alaska, jurisdictions with tropical climate) should follow guidance from public health authorities on timing of administration. Refer to the 2025 Child and Adolescent Immunization Schedule for considerations regarding nirsevimab administration to infants.

Age 75 years or older

- **Unvaccinated:** 1 dose (Arexvy or Abrysvo or mResvia). Additional doses not recommended
- **Previously vaccinated:** additional doses not recommended. No data are available to inform whether additional doses are needed.

Respiratory syncytial virus vaccination - *continued*

Special situations

- **Age 50–74 years:**
  - **Unvaccinated and at increased risk of severe RSV disease**:** 1 dose (Arexvy or Abrysvo or mResvia). Additional doses not recommended.
  - **Previously vaccinated:** additional doses not recommended. No data are available to inform whether additional doses are needed.

Persons 50 years and older can get RSV vaccine at any time but it is best to administer in late summer and early fall before RSV spreads in communities—ideally August through October in most of continental United States. For further guidance, see www.cdc.gov/mmwr/volumes/73/wr/mm7332e1.htm.

****Note: *People can self–attest to the presence of a risk factor.* The following medical and other conditions increase the risk of severe RSV disease:**

- Chronic cardiovascular disease e.g., heart failure, coronary artery disease, congenital heart disease. Excludes isolated hypertension.
- Chronic lung or respiratory disease e.g., chronic obstructive pulmonary disease, emphysema, asthma, interstitial lung disease, cystic fibrosis
- End stage renal disease or dependence on hemodialysis or other renal replacement therapy
- Diabetes mellitus complicated by chronic kidney disease, neuropathy, retinopathy, or other end–organ damage
- Diabetes mellitus requiring treatment with insulin or sodium–glucose cotransporter 2 (SGLT2) inhibitor
- Neurologic or neuromuscular conditions causing impaired airway clearance or respiratory muscle weakness e.g., post–stroke dysphagia, amyotrophic lateral sclerosis, muscular dystrophy. Excludes history of stroke without impaired airway clearance.
- Chronic liver disease e.g., cirrhosis
- Chronic hematologic conditions e.g., sickle cell disease, thalassemia
- Severe obesity (body mass index ≥ 40 kg/m2)
- Moderate or severe immune compromise
- Residence in a nursing home
- Other chronic medical conditions or risk factors that a health care provider determines would increase the risk of severe disease due to viral respiratory infection e.g., frailty, concern for presence of undiagnosed chronic medical conditions, residence in a remote or rural community where escalation of medical care is challenging.

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Tetanus, diphtheria, and pertussis vaccination

Routine vaccination

- **Completed primary series and received at least 1 dose Tdap at age 10 years or older:** Td or Tdap every 10 years thereafter
- **Completed primary series and did NOT receive Tdap at age 10 years or older:** 1 dose Tdap, then Td or Tdap every 10 years thereafter
- **Unvaccinated or incomplete primary vaccination series for tetanus, diphtheria, or pertussis:** administer remaining doses (1, 2, or 3 doses) to complete 3-dose primary series. 1 dose Tdap followed by 1 dose Td or Tdap at least 4 weeks later, and a third dose of Td or Tdap 6–12 months later (Tdap is preferred as first dose and can be substituted for any Td dose), then Td or Tdap every 10 years thereafter.

Special situations

- **Pregnancy:** 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36
- **Wound management:** Persons with 3 or more doses of tetanus–toxoid–containing vaccine: For clean and minor wounds, administer Tdap or Td if more than 10 years since last dose of tetanus–toxoid–containing vaccine; for all other wounds, administer Tdap or Td if more than 5 years since last dose of tetanus–toxoid–containing vaccine. Tdap is preferred for persons who have not previously received Tdap or whose Tdap history is unknown. If a tetanus–toxoid–containing vaccine is indicated for a pregnant woman, use Tdap. For detailed information, see www.cdc.gov/mmwr/volumes/69/wr/mm6903a5.htm

Varicella vaccination

Routine vaccination

- **No evidence of immunity to varicella:** 2-dose series 4–8 weeks apart if previously did not receive varicella–containing vaccine (VAR or MMRV [measles–mumps–rubella–varicella vaccine] for children); if previously received 1 dose varicella–containing vaccine, 1 dose at least 4 weeks after first dose.
  - **Evidence of immunity:** U.S.–born before 1980 (except for pregnant women and health care personnel [see below]), documentation of 2 doses varicella–containing vaccine at least 4 weeks apart, diagnosis or verification of history of varicella or herpes zoster by a health care provider, laboratory evidence of immunity or disease.

Special situations

- **Pregnancy with no evidence of immunity to varicella:** VAR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose if previously received 1 dose varicella–containing vaccine or dose 1 of 2-dose series (dose 2: 4–8 weeks later) if previously did not receive any varicella–containing vaccine, regardless of whether U.S.–born before 1980.
- **Health care personnel with no evidence of immunity to varicella:** 1 dose if previously received 1 dose varicella–containing vaccine; 2-dose series 4–8 weeks apart if previously did not receive any varicella–containing vaccine, regardless of whether U.S.–born before 1980.
- **HIV infection with CD4 percentages ≥15% and CD4 count ≥200 cells/mm^3 with no evidence of immunity:** Vaccination may be considered (2 doses 3 months apart); VAR contraindicated for HIV infection with CD4 percentage <15% or CD4 count <200 cells/mm^3.
- **Severe immunocompromising conditions:** VAR contraindicated

Zoster vaccination

Routine vaccination

- **Age 50 years or older*:** 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon), regardless of previous herpes zoster or history of zoster vaccine live (ZVL, Zostavax) vaccination.

***Note:** Serologic evidence of prior varicella is not necessary for zoster vaccination. However, if serologic evidence of varicella susceptibility becomes available, providers should follow ACIP guidelines for varicella vaccination first. RZV is not indicated for the prevention of varicella, and there are limited data on the use of RZV in persons without a history of varicella or varicella vaccination.

Special situations

- **Pregnancy:** There is currently no ACIP recommendation for RZV use in pregnancy. Consider delaying RZV until after pregnancy.
- **Immunocompromising conditions (including persons with HIV regardless of CD4 count)**:** 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon). For detailed information, see www.cdc.gov/shingles/hcp/vaccine–considerations/immunocompromised–adults.html

****Note:** If there is no documented history of varicella, varicella vaccination, or herpes zoster, providers should refer to the clinical considerations for use of RZV in immunocompromised adults aged ≥19 years and the ACIP varicella vaccine recommendations for further guidance: www.cdc.gov/mmwr/volumes/71/wr/mm7103a2.htm

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Appendix Recommended Adult Immunization Schedule for Ages 19 Years or Older, United States, 2025

Contraindications and Precautions to Commonly Used Vaccines

Adapted from Table 4–1 in Advisory Committee on Immunization Practices (ACIP) General Best Practice Guidelines for Immunization: Contraindication and Precautions, Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices—United States, 2024–25 Influenza Season | MMWR (cdc.gov), *and* Contraindications and Precautions for COVID–19 Vaccination

Vaccines and Other Immunizing Agents	Contraindicated or Not Recommended[1]	Precautions[2]
COVID–19 mRNA vaccines [Pfizer–BioNTech, Moderna]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of an mRNA COVID–19 vaccine[3]	• Diagnosed non–severe allergy (e.g., urticaria beyond the injection site) to a component of an mRNA COVID–19 vaccine[3]; or non–severe, immediate (onset less than 4 hours) allergic reaction after administration of a previous dose of an mRNA COVID–19 vaccine • Myocarditis or pericarditis within 3 weeks after a dose of any COVID–19 vaccine • Multisystem inflammatory syndrome in children (MIS–C) or multisystem inflammatory syndrome in adults (MIS–A) • Moderate or severe acute illness, with or without fever
COVID–19 protein subunit vaccine [Novavax]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of a Novavax COVID–19 vaccine[3]	• Diagnosed non–severe allergy (e.g., urticaria beyond the injection site) to a component of Novavax COVID–19 vaccine[3]; or non–severe, immediate (onset less than 4 hours) allergic reaction after administration of a previous dose of a Novavax COVID–19 vaccine • Myocarditis or pericarditis within 3 weeks after a dose of any COVID–19 vaccine • Multisystem inflammatory syndrome in children (MIS–C) or multisystem inflammatory syndrome in adults (MIS–A) • Moderate or severe acute illness, with or without fever
Influenza, egg-based, inactivated injectable (IIV3)	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[4] (excluding egg)	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Moderate or severe acute illness with or without fever
Influenza, cell culture–based inactivated injectable (ccIIV3) [Flucelvax]	• Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component[4] of ccIIV3	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, RIV, or LAIV of any valency. If using ccIIV3, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, recombinant injectable (RIV3) [Flublok]	• Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component[4] of RIV3	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, ccIIV, or LAIV of any valency. If using RIV3, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, live attenuated (LAIV3) [Flumist]	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[4] (excluding egg) • Anatomic or functional asplenia • Immunocompromised due to any cause including, but not limited to, medications and HIV infection • Close contacts or caregivers of severely immunosuppressed persons who require a protected environment • Pregnancy • Cochlear implant • Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear, or any other cranial CSF leak • Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days.	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Asthma in persons aged 5 years or older • Persons with underlying medical conditions (other than those listed under contraindications) that might predispose to complications after wild–type influenza virus infection [e.g., chronic pulmonary, cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus)] • Moderate or severe acute illness with or without fever

1. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization.
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization.
3. See package inserts and FDA EUA fact sheets for a full list of vaccine ingredients. mRNA COVID–19 vaccines contain polyethylene glycol (PEG).
4. Vaccination providers should check FDA–approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. See Package inserts for U.S.–licensed vaccines.

Appendix Recommended Adult Immunization Schedule for Ages 19 Years or Older, United States, 2025

Vaccine	Contraindicated or Not Recommended[1]	Precautions[2]
Haemophilus influenzae type b (Hib)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever
Hepatitis A (HepA)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including neomycin	• Moderate or severe acute illness with or without fever
Hepatitis B (HepB)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including yeast • Pregnancy: PreHevbrio is not recommended due to lack of safety data in pregnant women. Use other hepatitis B vaccines if HepB is indicated[4]	• Moderate or severe acute illness with or without fever
Hepatitis A–Hepatitis B vaccine (HepA–HepB) [Twinrix]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including neomycin and yeast	• Moderate or severe acute illness with or without fever
Human papillomavirus (HPV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • *Pregnancy: HPV vaccination not recommended*	• Moderate or severe acute illness with or without fever
Measles, mumps, rubella (MMR)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long–term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) • Pregnancy • Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent	• Recent (≤11 months) receipt of antibody–containing blood product (specific interval depends on product) • History of thrombocytopenia or thrombocytopenic purpura • Need for tuberculin skin testing or interferon–gamma release assay (IGRA) testing • Moderate or severe acute illness with or without fever
Meningococcal ACWY (MenACWY) (MenACWY–CRM) [Menveo] (MenACWY–TT) [MenQuadfi]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • For MenACWY–CRM only: severe allergic reaction to any diphtheria toxoid– or CRM197–containing vaccine • For MenACWY–TT only: severe allergic reaction to a tetanus toxoid–containing vaccine	• Moderate or severe acute illness with or without fever
Meningococcal B (MenB) MenB–4C [Bexsero] MenB–FHbp [Trumenba]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Pregnancy • For MenB–4C only: Latex sensitivity • Moderate or severe acute illness with or without fever
Meningococcal ABCWY (MenACWY–TT/MenB–FHbp) [Penbraya]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe allergic reaction to a tetanus toxoid–containing vaccine	• Moderate or severe acute illness, with or without fever
Mpox [Jynneos]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness, with or without fever
Pneumococcal conjugate (PCV15, PCV20, PCV21)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe allergic reaction (e.g., anaphylaxis) to any diphtheria–toxoid–containing vaccine or to its vaccine component[3]	• Moderate or severe acute illness with or without fever
Pneumococcal polysaccharide (PPSV23)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever
Poliovirus vaccine, inactivated (IPV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Pregnancy • Moderate or severe acute illness with or without fever
Respiratory syncytial virus vaccine (RSV)	• Severe allergic reaction (e.g., anaphylaxis) to a vaccine component	• Moderate or severe acute illness with or without fever
Tetanus, diphtheria, and acellular pertussis (Tdap) Tetanus, diphtheria (Td)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • For Tdap only: Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP, DTaP, or Tdap	• Guillain–Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus–toxoid–containing vaccine • History of Arthus–type hypersensitivity reactions after a previous dose of diphtheria–toxoid containing or tetanus–toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus–toxoid–containing vaccine • Moderate or severe acute illness with or without fever • For Tdap only: Progressive or unstable neurological disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized
Varicella (VAR)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long–term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) • Pregnancy • Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent	• Recent (≤11 months) receipt of antibody–containing blood product (specific interval depends on product) • Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination) • Use of aspirin or aspirin–containing products • Moderate or severe acute illness with or without fever
Zoster recombinant vaccine (RZV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever • Current episode of herpes zoster

1. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/imz-best-practices/contraindications-precautions.html.
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/imz-best-practices/contraindications-precautions.html.
3. Vaccination providers should check FDA–approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. Package inserts for U.S.–licensed vaccines are available at www.fda.gov/vaccines–blood–biologics/approved–products/vaccines–licensed–use–united–states.
4. For information on the pregnancy exposure registry for persons who were inadvertently vaccinated with PreHevbrio while pregnant, please visit www.prehevbrio.com/#safety.

Addendum

Recommended Adult Immunization Schedule for Ages 19 Years or Older, United States, 2025

In addition to the recommendations presented in the previous sections of this immunization schedule, CDC has approved the following ACIP recommendations since October 24, 2024.

Vaccines	Recommendations	Effective Date of Recommendation[†]
Meningococcal (MenACWY-CRM/MenB-4C, Penmenvy)	ACIP recommends GSK's MenABCWY vaccine may be used when both MenACWY and MenB are indicated at the same visit* *(1) healthy persons aged 16–23 years (routine schedule) when shared clinical decision-making favors administration of MenB vaccine and (2) persons aged ≥10 years who are at increased risk for meningococcal disease (e.g., because of persistent complement deficiencies, complement inhibitor use, or functional or anatomic asplenia).	June 25, 2025
RSV (Abrysvo,Arexvy,mResvia)	ACIP recommends adults 50–59 years of age who are at increased risk of severe RSV disease[a] receive a single dose of RSV vaccine.[b,c] a. CDC will publish Clinical Considerations that describe chronic medical conditions and other risk factors for severe RSV disease for use in this risk-based recommendation. b. At this time, RSV vaccination is recommended as a single dose only. Persons who have already received RSV vaccination are NOT recommended to receive another dose. c. RSV vaccine can be administered with any product licensed in this age group.	June 25, 2025

Note: As of May 29, 2025, the schedule incorporates the HHS directive regarding COVID-19 vaccine recommendations. (Changes were made to tables and notes for COVID-19 vaccines in pregnant women.)

[†]The effective date is the date when the recommendation was adopted and became official.

Advisory Committee on Immunization Practices (ACIP)

ACIP Shared Clinical Decision-Making Recommendations

JANUARY 7, 2025

For Everyone

The content of this page is being revised to reflect updated childhood immunization recommendations recently made by the CDC.

AT A GLANCE

- Unlike routine, catch-up, and risk-based recommendations, shared clinical decision-making vaccinations are individually based and informed by a decision process between the health care provider and the patient or parent/guardian.
- These frequently asked questions provide clarity on the ACIP's shared clinical decision-making recommendations, guidance, and implementation considerations.

Introduction

These frequently asked questions (FAQs) address the Advisory Committee on Immunization Practices' (ACIP) shared clinical decision-making recommendations and guidance and implementation considerations.

Frequently Asked Questions

Collapse All

What are ACIP's current shared clinical decision-making recommendations?

ACIP has five recommendations for vaccination based on shared clinical decision-making and these are shown in the adult and child/adolescent the immunization schedules.

- Meningococcal B (MenB) vaccination for adolescents and young adults aged 16–23 years
- Hepatitis B (HepB) vaccination for adults aged 60 years and older with diabetes mellitus
- Human papillomavirus (HPV) vaccination for adults aged 27–45 years
- Pneumococcal conjugate vaccination (PCV20 or PCV21) for adults aged 65 years and older who have completed the recommended vaccine series with both PCV13 (at any age) and PPSV23 (which was administered at age ≥65 years)
- Additional doses of COVID-19 vaccination for people who are moderately or severely immunocompromised

How do shared clinical decision-making recommendations differ from routine, catch-up, and risk-based immunization recommendations?

Unlike routine, catch-up, and risk-based recommendations, shared clinical decision-making vaccinations are not recommended for everyone in a particular age group or everyone in an identifiable risk group. Rather, shared clinical decision-making recommendations are individually based and informed by a decision process between the health care provider and the patient or parent/guardian.

The key distinction between routine, catch-up, and risk-based recommendations and shared clinical decision-making recommendations is the default decision to vaccinate. For routine, catch-up, and risk-based recommendations, the default decision should be to vaccinate the patient based on age group or other indication, unless contraindicated. For shared clinical decision-making recommendations, there is no default—the decision about whether or not to vaccinate may be informed by the best available evidence of who may benefit from

vaccination; the individual's characteristics, values, and preferences; the health care provider's clinical discretion; and the characteristics of the vaccine being considered. There is not a prescribed set of considerations or decision points in the decision-making process.

When does ACIP make shared clinical decision-making recommendations?

Generally, ACIP makes shared clinical decision-making recommendations when individuals may benefit from vaccination, but broad vaccination of people in that group is unlikely to have population-level impacts.

For example, in June 2019, ACIP recommended shared clinical decision-making for HPV vaccination of adults aged 27–45 years. HPV acquisition generally occurs soon after first sexual activity. Vaccine effectiveness is lower in older age groups because of prior infections and lower risk of exposure (for example, among persons who are in a long-term, mutually monogamous sexual partnership). ACIP recommended shared clinical decision-making rather than catch-up vaccination because most adults in this age group would have no or minimal benefits from vaccination. However, some individuals who are not already immune to HPV through vaccination or natural infection (e.g., a previously unvaccinated person who has never had sex) and who might be at risk for acquiring a new HPV infection in the future (e.g., plans to have sex with a new partner in the future) might benefit from vaccination.

Who is considered a health care provider with regard to shared clinical decision-making recommendations?

In this context, CDC defines a health care provider as anyone who provides or administers vaccines: primary care physicians, specialists, physician assistants, nurse practitioners, registered nurses, and pharmacists.

Which patients should providers discuss shared clinical decision-making recommendations with?

It's up to the provider. Some health care providers may choose to discuss immunizations recommended for shared clinical decision-making with all or most of their patients who could receive it, while some providers may be more selective when discussing these immunizations with their patients. Health care providers should also be receptive to patient-initiated conversations about these immunizations.

What resources are available for providers who want to implement these recommendations?

ACIP and CDC provide resources to help providers implement these recommendations.

ACIP recommendations

Health care providers can find information on ACIP's recommendations on the *ACIP Vaccine Recommendations and Guidelines* page.

For every ACIP recommendation, CDC publishes a policy note in the Morbidity and Mortality Weekly Report (MMWR), which provides background and considerations on each recommendation.

CDC resources for shared clinical decision-making

CDC will also develop vaccine-specific guidance to help clinicians understand and apply shared clinical decision-making recommendations.

Meningococcal B Vaccination PDF

Hepatitis B Vaccination

HPV Vaccination for Adults Aged 27-45 Years PDF

Pneumococcal Vaccination for Adults 65 Years or Older PDF

Additional Doses of COVID-19 Vaccination for People who are Moderately or Severely Immunocompromised

Are shared clinical decision-making recommendations covered by private insurers?

Under the Affordable Care Act and its implementing regulations, ACIP recommendations that have been adopted by CDC "with respect to the individual involved" and are "listed on the Immunization Schedules of the Centers for Disease Control and Prevention" generally are required to be covered by group health plans and health insurance issuers offering group or individual health insurance coverage without

imposing any cost-sharing requirements (such as a copayment, coinsurance, or deductible).[A] This coverage requirement includes shared clinical decision-making recommendations when they have been adopted by CDC and are listed on the immunization schedules.

SOURCES

CONTENT SOURCE:
National Center for Immunization and Respiratory Diseases (NCIRD)

FOOTNOTES

A. Section 2713(a)(2) of the Public Health Service Act, as added by section 1001 of the Affordable Care Act, implemented at 26 CFR 54.9815-2713(a)(1)(ii), 29 CFR 2590.715-2713(a)(1)(ii), and 45 CFR 147.130(a)(1)(ii). This requirement does not apply to grandfathered health plan coverage under section 1251 of the Affordable Care Act, implemented at 26 CFR 54.9815-1251, 29 CFR 2590.715-1272, and 45 CFR 147.140.

HOW DO I SAFELY USE A **MULTI-DOSE VACCINE VIAL?**

You vaccinate patients to protect them. Correctly using multi-dose vials keeps your patients safe from germs that can spread from contaminated vials, needles, and syringes.

CHECK THAT YOU ARE USING MULTI-DOSE VACCINE VIALS SAFELY ***EVERY TIME.***



- **Always prepare multi-dose vial injections away from patient care spaces in a clean designated area**
- **Clean your hands** before touching the vial
- **Check the label** to make sure it is a multi-dose vaccine vial
- Check to make sure the vaccine is **not expired or "beyond use"**
- **Look and see** if the vaccine appears the way the vaccine maker tells you it should
- Use **brand-new, sterile needles and syringes** for every vaccine dose
- **Disinfect the top** part of the vial (the vial stopper) with an alcohol prep pad—**every time**
- Make sure the **top is dry** before sticking the needle in it
- When you first put a needle in, **write the date and time** on the label
- Follow the vaccine maker's **instructions for storage**
- **Never "pool" doses** (combine partial doses from multiple vials to make one dose for a patient)

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

PROJECT FIRSTLINE

Vaccine Storage and Handling Toolkit

With Key Resources and
Addendum for SNS-supplied Jynneos



JULY 2026

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Vaccine Storage and Handling Toolkit: 2026 Key Updates

Introduction

- Clarified guidance on how VFC providers should use this toolkit
- Added links to CDC's vaccine storage and handling training and related resources

Section 2: Staffing and Training

- Expanded details on standard operating procedures (SOPs) for vaccine storage and handling
- Updated guidance on the backup (alternate) vaccine coordinator role

Section 3: Vaccine Storage and Temperature Monitoring Equipment

- Updated information on acceptable vaccine storage units
- Revised guidance for storing vaccines with different temperature ranges in the same unit
- Added new guidance on temperature monitoring device placement and use
- Added new details on Certificates of Calibration Testing
- Added alternatives for storing vaccines without their original packaging
- Revised guidance on how to handle temperature excursions
- Clarified CDC's role following temperature excursions

Section 4: Vaccine Inventory Management

- Added guidance on vaccine ordering
- Added guidance on expiration dates and beyond-use dates

Section 5: Vaccine Preparation

- Added best practices for vaccine preparation
- Added information on predrawn vaccines

Resources section

- Updated and reorganized tools; moved some content to the Vaccine Storage and Handling Resources website

Addendum

- Updated instructions for storage, handling, and transport of monkeypox vaccine (Jynneos)

Disclaimer: This document provides guidance and best practices on storage, handling, and transport of immunization products and their diluents. It also provides information about Vaccines for Children (VFC) program product storage and handling requirements. Use of trade names and commercial sources in this toolkit is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services (DHHS), the U.S. Public Health Service (PHS), or Centers for Disease Control and Prevention (CDC).

Introduction

Proper vaccine storage and handling practices are essential for protecting patients by ensuring product efficacy and quality, preventing unnecessary revaccination, minimizing vaccine wastage, and ensuring a viable vaccine supply. Ultimately, adhering to vaccine storage and handling guidelines helps improve patients' health by preventing disease.

The Centers for Disease Control and Prevention (CDC) *Vaccine Storage and Handling Toolkit* provides valuable information, guidance, and resources to help providers store and handle vaccines properly. This information also applies to RSV monoclonal antibody products. The toolkit brings together content from manufacturer information, findings from scientific studies, *General Best Practices for Immunization*, and *Epidemiology and Prevention of Vaccine-Preventable Diseases* (the "Pink Book").

Where to Find Current, Product-specific Storage and Handling Guidance

The source of vaccine storage and handling guidance depends on whether the vaccine is *approved* (also referred to as *licensed*) by the U.S. Food and Drug Administration (FDA) or *authorized* by FDA under an Emergency Use Authorization (EUA).

- FDA-approved vaccines: Refer to the manufacturer's package insert.
- EUA-authorized vaccines: Refer to the EUA Fact Sheet for Healthcare Providers. More information on EUAs is available at Emergency Use Authorization | FDA.

Note: Vaccine manufacturers may occasionally revise expiration or beyond-use dates after the release of the package insert or EUA Fact Sheet. These updates are typically communicated through the FDA's Expiration Dating Extension website or in a "Dear Health Care Provider" letter.

Vaccines for Children Program

The Vaccines for Children (VFC) program provides vaccines to children whose parents or guardians may not be able to afford them. VFC providers play a crucial role in ensuring VFC-eligible children receive effective, quality immunization products.

The VFC Operations Guide is the primary source of guidance for VFC participants. This toolkit complements the VFC Operations Guide by providing background on many VFC storage and handling requirements and highlighting best practices essential for safeguarding the public vaccine supply. VFC participants are encouraged to implement all guidance and best practices outlined in the toolkit in addition to the requirements and guidance from the VFC Operations Guide.

VFC participants and other providers who administer vaccines purchased with public funds should consult their state or local immunization program (referred to throughout this document as "immunization program") to ensure compliance with all mandatory jurisdiction-specific storage and handling requirements.

Note: The terms "VFC-compliant," "CDC-compliant," or "satisfies VFC requirements" are sometimes used in equipment vendor marketing materials or on their websites. In this context, "compliance" and related terms may lead consumers to incorrectly believe that CDC or the VFC program has independently assessed and verified the quality of these products. CDC, including the VFC program, is not authorized to assess, validate, verify, or endorse the products or services of private companies. Should providers encounter this type of language in vendor marketing materials, please keep in mind that neither CDC nor the VFC program has validated any product or service for compliance with CDC or VFC program requirements or standards.

Introduction

Additional CDC Vaccine Storage and Handling Training and Information:

- Vaccine storage and handling home page: www.cdc.gov/vaccines/hcp/storage-handling/
- Vaccine storage and handling resources page: www.cdc.gov/vaccines/hcp/storage-handling/resources.html
- Epidemiology and Prevention of Vaccine-Preventable Diseases (the "Pink Book"): https://www.cdc.gov/pinkbook/hcp/table-of-contents/chapter-5-vaccine-storage-and-handling.html
- General Best Practices for Immunization: Storage and Handling of Immunobiologics: www.cdc.gov/vaccines/hcp/imz-best-practices/storage-handling-immunobiologics.html
- You Call the Shots: Vaccine Storage and Handling
  - www2a.cdc.gov/nip/isd/ycts/mod1/courses/sh/ce.asp (Full training module)
  - www2.cdc.gov/vaccines/ed/vfc/sh/ (Refresher Test for VFC Providers)

Providers with Specific Questions Can Contact:

- State/local immunization programs: www.cdc.gov/vaccines/php/imz-program-resources/awardee-websites.html
- CDC's immunization inquiry service (NIPINFO): nipinfo@cdc.gov
- CDC's vaccine storage and temperature monitoring equipment experts (for VFC awardees only): izcoldchain@cdc.org

Icon Guide for the Vaccine Storage and Handling Toolkit

This list explains the icons used throughout the toolkit and what they represent.

ICON	DESCRIPTION
	CDC Guidance – Essential action to protect the vaccine supply
	CDC Best Practice – Additional actions, practices, and procedures to enhance protection of the vaccine supply
	Vaccines for Children (VFC) Requirements – Highlights VFC program-specific storage and handling requirements

Section One: Vaccine Cold Chain

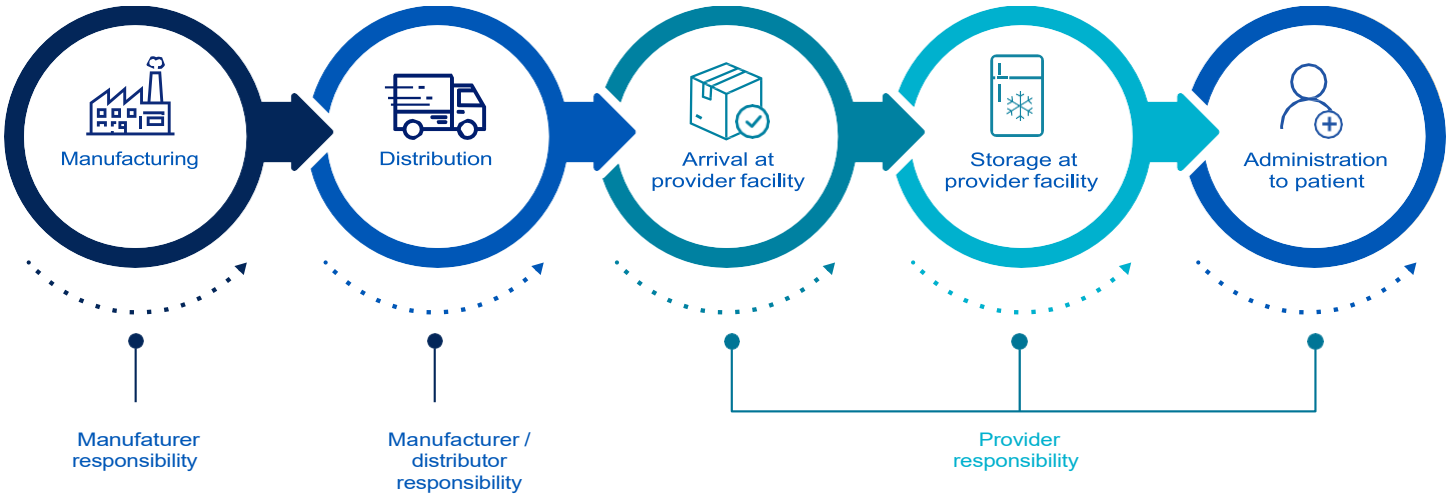
Proper vaccine storage and handling plays a critical role in efforts to prevent vaccine-preventable diseases. Vaccines and other immunizing agents (e.g., RSV monoclonal antibodies) exposed to temperatures outside the recommended ranges may lose potency, resulting in decreased protection and the need to revaccinate patients.

VFC providers and other health care professionals who administer vaccines purchased with public funds should contact their immunization program for state-specific requirements related to procedures for maintaining an effective cold chain.

Cold Chain Basics

Effective storage and handling starts with maintaining a reliable vaccine cold chain—a temperature-controlled supply chain that includes all vaccine-related equipment and procedures. The cold chain begins with the cold storage unit at the manufacturing plant, extends to the transport and delivery of the vaccine and correct storage at the provider facility, and ends with administration of the vaccine to the patient.

Vaccine Cold Chain Flowchart



Source: CDC

An effective cold chain depends on three key elements:

- Well-trained staff
- Reliable storage and temperature monitoring equipment
- Accurate vaccine inventory management

Why the Cold Chain Matters

Failure to maintain the cold chain can cause vaccines to lose potency so they become unusable. Potency decreases every time a vaccine is exposed to improper conditions, such as temperatures outside the recommended range at any point in the cold chain. For some vaccines, exposure to light also reduces vaccine potency. Once potency is lost, it cannot be restored. For refrigerated vaccines, a single exposure to freezing temperatures (0°C [32°F] or colder) can completely destroy vaccine potency.

Vaccine appearance is not a reliable indicator that vaccines have been stored in appropriate conditions. For example, inactivated vaccines—even when exposed to freezing temperatures—may not appear frozen, giving no visual indication of reduced or lost potency.

According to *General Best Practices for Immunization*,

- Vaccines stored at inappropriate temperatures should not be administered unless public health authorities or the manufacturer confirm they are safe and effective based on stability data.
- If such vaccines have already been administered, doses should generally be repeated.

Failure to maintain the cold chain can result in extra doses for patients, increased wastage and costs for providers, and damage to public confidence in vaccines. Most importantly, patients refusing revaccination can remain unprotected from potentially serious, vaccine-preventable diseases. By following proper storage and handling practices, providers can ensure patients receive effective vaccines.

Section Two: Staffing and Training

Effective vaccine storage and handling practices depend on knowledgeable, well-trained staff. All staff who receive vaccine deliveries, handle vaccines, or administer vaccines should be trained in general storage and handling practices and be familiar with their facility's storage and handling standard operating procedures (SOPs).

VFC providers and others who administer vaccines purchased with public funds should contact their immunization program for state-specific requirements related to training, policies, and procedures.

Storage and Handling Standard Operating Procedures (SOPs)

SOPs help facilities stay organized, serve as a reference and training tool, and support proper vaccine management. They also play a critical role in identifying, reporting, and correcting problems. To ensure SOPs are practical and comprehensive, providers should follow the guidance below.

Each facility should develop and maintain clearly written, detailed, and up-to-date SOPs for vaccine storage and handling. SOPs should address three main areas:

1. General Information
   - Updated contact lists (e.g., primary and backup vaccine coordinators, vaccine manufacturers, service providers)
   - Equipment details (e.g., serial numbers, maintenance records)
   - Staff roles and responsibilities
   - Commonly used forms
   - Documentation of staff training
2. Routine Storage and Handling Procedures
   - Vaccine ordering, receipt, storage, and inventory control
   - Stock rotation and management of expired, spoiled, or wasted vaccines
   - Use of an appropriate temperature monitoring device and current calibration certificates
   - Daily temperature monitoring and recording
   - Procedures for temperature excursions
   - Vaccine handling and preparation
3. Emergency Procedures
   - Plans to monitor, pack, and transport vaccines in the event of equipment failure, power outages, natural disasters, or other emergencies affecting storage conditions

The Vaccine Storage and Handling SOP Worksheet in the toolkit's Resources section contains additional information to assist with developing these procedures.

Keep SOPs near vaccine storage units and ensure staff know their location.

Review and update SOPs at least annually to confirm accuracy and relevance.

Staff Roles and Responsibilities

Designate a primary vaccine coordinator. This person will be responsible for ensuring all vaccines are stored and handled correctly and should be an expert on their facility's related SOPs.

Appoint a backup (alternate) vaccine coordinator. This person will act in the absence of the primary coordinator. The backup coordinator, like the primary coordinator, should be an expert on the facility's storage and handling SOPs.

The coordinator's responsibilities may be completed by the coordinator or delegated to appropriately trained staff. Their competency for the specific tasks assigned should be documented.

Coordinator's responsibilities should include

- Ordering vaccines
- Overseeing proper receipt and storage of vaccine deliveries
- Documenting vaccine inventory information
- Organizing vaccines within storage units
- Rotating stock at least weekly, so vaccines with the earliest expiration dates are used first
- Removing expired vaccines from storage units
- Setting up temperature monitoring devices
- Checking and recording in temperature logs the minimum/maximum temperatures at the start of each workday
- Reviewing and analyzing temperature data at least weekly to identify any shifts in temperature trends
- Responding to temperature excursions (out-of-range temperatures)
- Maintaining all documentation, such as inventory and temperature logs
- Organizing vaccine-related training and ensuring staff complete training
- Monitoring the operation of vaccine storage equipment and systems
- Overseeing proper vaccine transport
- Preparing for emergencies:
  - Tracking inclement weather conditions
    - The National Oceanic and Atmospheric Administration (NOAA) provides up-to-date information on U.S. weather conditions including active storms.
  - Ensuring appropriate handling of vaccines during a disaster or power outage
    - The Federal Emergency Management Agency (FEMA) offers a wide range of information on disaster preparedness.
    - The Center for Biologics Evaluation and Research (CBER) at the Food and Drug Administration (FDA) offers information concerning the storage and use of temperature-sensitive biological products that have been involved in a temporary electrical power failure or flood conditions.

Staff Training

All staff members who are involved in vaccine management—from receiving shipments to administering vaccines—should be trained in general storage and handling practices and be familiar with their facility's storage and handling SOPs.

VFC providers and others who administer vaccines purchased with public funds should contact their immunization program for state-specific requirements regarding annual training. CDC offers a free training module *You Call the Shots: Vaccine Storage and Handling* that may fulfill these requirements.

Train staff on routine vaccine storage and handling and emergency procedures. Document all training completed, including dates and participant names.

Ensure storage and handling training is completed at key times:

- During new employee orientation (and at the time of VFC provider enrollment)
- Annually, as a refresher for all staff involved in vaccine storage and handling activities
- Whenever a new vaccine product is added to the inventory
- Whenever storage and handling requirement are updated (e.g., changes to a package insert)

Section Three: Vaccine Storage and Temperature Monitoring Equipment

Each facility should have proper storage and temperature monitoring equipment that is set up correctly, maintained appropriately, and repaired as needed.

VFC providers and others who administer vaccines purchased with public funds should contact their immunization program for state-specific requirements related to storage and temperature monitoring equipment.

Vaccine Storage Units: Refrigerator and Freezer

Four types of units are suitable for storing vaccines and are listed below in order of preference.

1. Units that conform to National Sanitation Foundation/ American National Standards Institute (NSF/ANSI) Standard 456
   A unit that conforms to NSF/ANSI Standard 456 is preferred. These units can come in various forms and have been rigorously tested for vaccine storage.

2. Purpose-built units
   Purpose-built units are the next best option because they are specifically designed for vaccine storage. They can be compact, under-the-counter style, or large units, and are typically designed for either refrigerating or freezing vaccines. However, some units (i.e., combination units) are designed to do both. Additional information about purpose-built units can be found in the toolkit's Resources section.

Dormitory-style Combined Units

Never use dormitory- or bar-style combined refrigerator/freezer units for vaccine storage. These units have a single exterior door and an evaporator plate/cooling coil, usually located in an icemaker/freezer compartment. These units pose a significant risk of freezing vaccines, even when used temporarily.

Not all small storage units are dormitory- or bar-style. Compact, purpose-built units for biologics are acceptable for vaccine storage.

3. Pharmaceutical-grade units
   Pharmaceutical-grade units are the third best option because they are specifically engineered to store pharmaceuticals or biologics. These units often have
   - Microprocessor-based temperature control with a digital temperature sensor (thermocouple, resistance temperature detector [RTD], or thermistor), and
   - Fan-forced air circulation with powerful fans or multiple cool air vents that promote uniform temperature and fast temperature recovery from an out-of-range temperature.

4. Household-grade units (for vaccine refrigeration only)
   Household-grade units may be used as a last option, but only for refrigerated vaccines. Never store vaccines in the freezer compartment of household-grade combination refrigerator/freezer units because they have cold spots and temperature fluctuations. If the facility stocks frozen vaccine, a separate stand-alone freezer unit is necessary.

Temperature variations can occur with the refrigerator compartment of a household-grade unit also. Air circulating from the freezer may expose refrigerated vaccines to freezing temperatures. So avoid storing vaccines on the top shelf directly under cooling vent. Do not turn off the freezer compartment, as this will

prevent the refrigerator from maintaining proper temperatures. Avoid storing vaccines and diluents in any part of the unit that may not provide stable temperatures or sufficient air flow. These areas include directly under cooling vents; in deli, fruit, or vegetable drawers; or on refrigerator door shelves.

Use units with enough space to accommodate the maximum inventory without crowding. Crowding blocks cold air circulation, leading to temperature fluctuations that can compromise vaccine viability.

Best Practices for Using Water Bottles in a Household-grade Unit

- Place water bottles on the top shelf, in the door racks, and on the unit floor of household-grade units. Doing so can help guard against temperature fluctuation caused by a power failure or frequent door opening and closing.
- Water bottles are not recommended for use with the majority of pharmaceutical-grade and purpose-built units. For such units, follow the manufacturer's guidance.



Storage Unit Placement

Good air circulation around the outside of the storage unit is essential. Always refer to the manufacturer-supplied owner's manual for storage unit placement. In general, position the storage unit in a well-ventilated room, leaving at least 2 inches (5 cm) of clearance from the ceiling and 1 to 2 inches (2.5 to 5 cm) from any adjacent walls. The cover of the motor compartment should not be blocked. The unit should be level and stable, with the bottom of the unit 1 to 2 inches above the floor. The unit door should open and close smoothly, fitting squarely against the body of the unit. If not properly secured, unit doors can compromise the internal temperature of vaccine storage units. Studies have found that most units work best when placed in an area with standard indoor room temperatures, typically between 20°C and 25°C (68°F and 77°F).

Storage Unit Doors

A door that is not sealed properly or is left open not only affects the unit's temperature but also exposes vaccines to light, which can reduce the potency of some vaccines. Consider using safeguards, such as self-closing door hinges, door alarms, or door locks, to ensure unit doors remain closed.

Stabilizing Temperatures in New and Repaired Units

It may take 2 to 7 days to stabilize the temperature in a newly installed or repaired refrigerator, and 2 to 3 days for a freezer. Before using a unit for vaccine storage, check and record the minimum and maximum temperatures each workday for 2 to 7 days. If temperatures cannot be recorded digitally, check and record temperatures at least twice each workday. After 2 consecutive days of temperatures recorded within the recommended range, the unit is considered stable and ready for use.

Temperature Ranges

Storage units must maintain the following temperature ranges at all times:

- Refrigerators between 2°C and 8°C (36°F and 46°F)
- Freezers between -50°C and -15°C (-58°F and +5°F)
- Ultra-cold freezers between -90°C and -60°C (-130°F and -76°F)

Thermostats should be set at the factory-set or midpoint temperature—for example, 5°C (41°F) for refrigerators or -20°C (-4°F) for freezers—to help reduce the risk of temperature excursions. Consult the owner's manual for instructions on how to operate the thermostat. Thermostats are marked in various ways and, in general, show levels of coldness rather than temperatures. The only way to know the temperature of a vaccine storage unit is to measure and monitor it with a temperature monitoring device.

Temperature Ranges May Differ

Certain COVID-19, monkeypox, and RSV vaccines have specific temperature requirements for storage. For example, mResvia, an RSV vaccine, if stored frozen, must be stored at temperatures between -40°C and -15°C (-40°F and 5°F). This is a narrower range than many other frozen vaccines, which are stored between -50°C and -15°C. If you store mResvia alongside other frozen vaccines, ensure the storage unit temperature does not fall below -40°C.

Always review the manufacturer's package insert or EUA Fact Sheet for Healthcare Providers to verify immunization product storage requirements and ensure that the correct temperature range is maintained.

Temperature Monitoring Devices

Every vaccine storage unit must have a temperature monitoring device (TMD). An accurate temperature history that reflects actual vaccine temperatures is critical for ensuring vaccine quality and potency. In addition, investing in a reliable device helps avoid the financial hardships of replacing vaccines that have lost their potency due to storage at out-of-range temperatures.

Digital Data Logger

A digital data logger (DDL) is a specific type of TMD that has the capability for continuous monitoring and provides the most accurate storage unit temperature information, including details on how long a unit has been operating outside the recommended temperature range (referred to as a "temperature excursion"). Unlike a simple minimum/maximum thermometer, which only shows the coldest and warmest temperatures reached in a unit, a DDL provides detailed information on all temperatures recorded at preset intervals.

Many DDLs use a buffered temperature probe, a device that provides the most accurate measurement of vaccine temperatures. In contrast, standard thermometers typically measure air temperature. Probes permanently embedded in a buffer are acceptable if the temperature monitoring system for the entire unit can be calibration-tested. Since certain DDLs cannot monitor ultra-cold temperatures, it's crucial to use a probe intended for ultra-cold environments.

Temperature data from a DDL can either be downloaded to a computer using special software or retrieved from a website. The software or website may also allow providers to set the frequency of temperature readings. Reviewing DDL data is critical for ensuring vaccine potency, so it is important to decide whether independent software or a website program works best for facility.

Use DDLs for routine, on-site vaccine storage; during vaccine transport; and in temporary, mobile, off-site, satellite, and community vaccination clinics.

Place a DDL or other appropriate TMD in each vaccine storage unit and each transport unit.

Have at least one backup DDL or TMD in case a primary device breaks, malfunctions, or requires calibration.

Best Practices for Temperature Monitoring Devices

- Have a supply of extra batteries* on hand.
- Use DDLs with the following features:
  - Detachable probe that best reflects vaccine temperatures (e.g., a probe buffered with glycol, glass beads, sand, or Teflon®)
  - Alarm for out-of-range temperatures
  - Low battery indicator*
  - Current, minimum, and maximum temperature display
  - Recommended uncertainty of ±0.5°C (±1°F)
  - Logging interval (or reading rate) that can be programmed to measure and record temperatures at least every 30 minutes

*Battery changes may affect temperature accuracy and may warrant checking against a known, calibrated TMD. Check with

Temperature Monitoring Device Placement

It is important to position the TMD correctly so that it accurately reflects the temperature of the vaccines. Refer to the owner's manual for detailed instructions for TMD placement.

If using a DDL in a storage unit,

- Place the buffered probe of the DDL in the center of the unit with the vaccines surrounding it. A device placed near the unit's walls, floor, vent, ceiling, or door may indicate temperatures that are colder or warmer than the actual vaccine temperature. Certain purpose-built units may recommend alternate locations or have designated areas for probe placement. Consult the owner's manual for detailed instructions on proper TMD placement in these units.
- Place the DDL's active digital display outside the unit so temperatures can be read without opening the door and disturbing the probe.

Temperature Monitoring Device Limitations

Some types of TMDs have significant limitations and should not be used to measure temperatures in vaccine storage units. These devices can be difficult to read and only display the temperature at the moment they are checked, which means they may fail to detect temperature excursions.

CDC does not recommend the following TMDs:

- Alcohol or mercury thermometers, even if placed in a fluid-filled, biosafe, liquid vial
- Bimetal stem TMDs
- TMDs used for food
- Chart recorders
- Infrared TMDs
- TMDs that do not have a current and valid Certificate of Calibration Testing

Important: Some devices sold in hardware and appliance stores are designed to monitor temperatures for household food storage. They are not calibrated or accurate enough to ensure vaccines are stored within correct temperature ranges. Using these devices can pose a significant risk of damaging vaccines.

Always review the manufacturer's package insert or EUA Fact Sheet for Healthcare Providers to verify immunization product storage requirements and ensure that the correct temperature range is maintained.

Calibration Testing of Temperature Monitoring Devices

Calibration testing ensures that TMDs provide accurate readings in line with nationally accepted standards.

Calibration testing should be performed every 2 to 3 years, or according to the manufacturer's recommended schedule.

Over time, TMDs may experience a "drift," affecting their accuracy. Testing verifies that the device's accuracy continues to meet nationally accepted standards.

Mishandling a TMD can also affect its accuracy. If a TMD is dropped, hit against the side of a storage unit, or is potentially damaged in any way, its accuracy should be checked against another calibrated TMD. If there is any question about accuracy, the device should be replaced or sent for calibration testing.

Certificate of Calibration Testing

Each DDL or appropriate TMD should have a current and valid Certificate of Calibration Testing. Keep Certificates of Calibration easily accessible for reference whenever needed.

To determine if an appropriate entity issued a Certificate of Calibration Testing or Report of Calibration, check to see if the certificate indicates one or more of the following:

- Conforms to International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) 17025 international standards for calibration testing and traceability
- Performed by a laboratory accredited by International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) signatory body

- Traceable to the standards maintained by the National Institute of Standards and Technology (NIST)
- Meets specifications and testing requirements for the American Society for Testing and Materials (ASTM) Standard E2877 Tolerance Class F or higher
- Refers to another acceptable accuracy validation method, such as comparison to other traceable reference standards or tests at thermometric fixed points

Each Certificate of Calibration Testing should include

- Model/device name or number
- Serial number
- Date of calibration (report or issue date)
- Recommended uncertainty of ±0.5°C (±1°F) or less
- Confirmation that the instrument passed testing (or instrument is in tolerance)
  - Some vendors that perform calibration testing only issue certificates for units that pass. In these instances, the certificate may not explicitly state "passed." If there is no indication of a passing result on the certificate, a statement from the vendor outlining their certification process may be kept on file as an alternative.

If calibration testing indicates that a TMD is not accurate within ±0.5°C (±1°F), the TMD must be replaced.

Power Supply

Even with appropriate equipment and temperature monitoring practices in place, power disruption can occur and result in destruction of the entire vaccine supply. Precautions should always be taken to protect the storage unit's power supply.

Plug in only one storage unit per electrical outlet to avoid a fire hazard and power source overload, which could cause the power to shut off.

Use a safety-lock plug or an outlet cover to prevent the unit from being unplugged.

Post "DO NOT UNPLUG" warning signs at electrical outlets and storage units to help ensure staff, custodians, electricians, and others do not unplug units.

Label fuses and circuit breakers (e.g., with "DO NOT STOP POWER signage) to alert people not to turn off power to a storage unit.

Use caution when using power outlets that can be tripped or switched off. Avoid using

- Built-in circuit switches (may have reset buttons).
- Outlets that a wall switch can activate.
- Multi-outlet power strips.

If built-in circuit switches, Uninterruptible Power Supply (UPS) unit, or power strip surge protection must be used, make sure the device is rated to carry the maximum current as specified by the storage unit's manufacturer. Additionally, consider how the device manages when the power is restored. Whether the device automatically restarts and allows the equipment to run or must be manually switched on should be considered and represented in Emergency Plans and SOPs. Contact the unit manufacturer for any additional questions or guidance regarding circuit switches, power strips, UPS, or surge protection.

If the entire storage unit is affected by a temperature excursion because of a power supply issue, unit malfunction, or other issue, refer to the facility's emergency SOPs.

Vaccine Temperature Monitoring

Regular temperature checks also provide an opportunity to inspect the storage unit, reorganize misplaced vaccines, and remove expired vaccines.

At the start of each workday, check and record minimum and maximum temperatures.

If the TMD does not read minimum/maximum temperatures, check and record the current temperature a minimum of two times per workday (at the start and end of the workday).

If a reading is missed, leave a blank entry in the log.

Record:

- Minimum/maximum temperature
- Date
- Time
- Name of person who checked and recorded the temperature
- Any actions taken if a temperature excursion occurred

Best Practices for Temperature Monitoring

- Check the temperature each time vaccines are accessed in the unit.
- Review storage unit temperature readings weekly to identify changes in temperature trends that might require action.
- Troubleshoot any fluctuation in temperature based on additional information provided in this toolkit, manufacturer manuals, and/or office storage and handling SOPs.
- Implement emergency SOPs if the storage unit may have failed. Never allow vaccines to remain in a malfunctioning unit for an extended period.

Some TMDs require resetting minimum/maximum temperatures to start tracking new readings for the next temperature check. Always follow the manufacturer's instructions for proper use.

Keep temperature logs for 3 years to track trends and recurring issues.

VFC providers and others who administer vaccines purchased with public funds should contact their immunization program for state-specific requirements related to record keeping.

Organizing and Storing Vaccines

Correct vaccine organization and placement helps prevent conditions that could reduce vaccine potency.

Store vaccines in their original packaging, with lids closed, until ready for administration.

The original packaging for vials and manufacturer-filled syringes contains critical information, including product identification, storage requirements, and expiration dates. It also protects vaccines from light, which is essential for many products to maintain potency. Loose vials can also be confused with other vaccines, increasing the risk of inventory and administration errors. However, for certain purpose-built units, storing vaccines outside their original packaging is recommended. If this is the case, always follow the manufacturer's guidance for proper storage.

If vaccines must be removed from the original packaging (e.g., for transport to an off-site clinic or when moving doses from the freezer for thawing), protect them from light by using a resealable, opaque container such as an envelope, opaque plastic bag, or clear plastic bag lined with paper.

Best Practices for Vaccine Organization and Storage

- Store each type of vaccine or diluent in its original packaging and in a separate container.
- Position vaccines and diluents 2 to 3 inches from the unit walls, ceiling, floor, and door. If using a household-grade unit, avoid storing vaccines and diluents in any part of the unit that may not provide stable temperatures or sufficient air flow, such as directly under cooling vents; in deli, fruit, or vegetable drawers; or on refrigerator door shelves. The instability of temperatures and air flow in these areas may expose vaccines to inappropriate storage temperatures.
- Label shelves and containers to clearly identify where each type of vaccine and diluent is stored.
- Store vaccines and diluents with similar packaging or names, or with both pediatric and adult formulations, on different shelves.
- Whenever possible, store diluent with its corresponding refrigerated vaccine. Never store diluent in a freezer.
- Avoid placing or storing any items other than vaccines, diluents, and water bottles inside storage units. Never store food and beverages in the unit with vaccines. Frequent opening of the refrigerator door to retrieve food items can adversely affect the internal temperature of the unit and potentially damage the vaccines.
  - If other medications and biological products must be stored in the same unit as vaccines, they must be clearly marked and stored in separate containers or bins.
    - Potentially contaminated items (e.g., blood, urine, stool) should be properly contained and stored below vaccines due to risk of contamination from drips or leaks.
    - The freezer of a household-grade unit may be used for non-vaccine medical storage, so long as the use does not compromise the temperature range within the refrigerator compartment.
- To promote air circulation, arrange vaccines and diluents in rows and allow space between them.
- Place vaccines and diluents with the earliest expiration dates in front of those with later dates.

Temperature Excursions

Temperature excursions or inappropriate storage conditions for any immunization product require immediate action. Any temperature reading outside the recommended range in the manufacturer's package insert or EUA factsheet is a temperature excursion. In general, manufacturers analyze information about the magnitude of the temperature excursion and the total amount of time that temperatures were out of range, as well as information about the vaccine in question, to determine whether a vaccine is likely to still be viable.

Vaccine Administration and Temperature Excursions

- Vaccines stored at inappropriate temperatures should not be administered unless the manufacturer provides guidance that vaccine safety and effectiveness have not been compromised. For guidance regarding whether the exposed vaccines remain viable, contact the vaccine manufacturer or the immunization program at the state or local health department.
- If vaccines exposed to inappropriate temperatures are inadvertently administered, the doses generally need to be repeated. For guidance on timing and spacing of revaccination, contact CDC at nipinfo@cdc.gov.

Perform the following steps in the event of a temperature excursion:

1. Any staff member who hears an alarm or notices a temperature excursion on the TMD should immediately notify the primary or backup vaccine coordinator, or report the problem to their supervisor.
2. Label exposed vaccines "DO NOT USE—TEMPERATURE EXCURSION" and move them to the correct storage conditions. Place them in a separate container apart from other vaccines in the unit. Do not discard these vaccines.
3. The vaccine coordinator or other appropriate staff person should begin to document information about the event:
   a. Date and time of the temperature excursion
   b. Storage unit temperature as well as room temperature, if available (including min/max temperatures during the time of the event, if available)
   c. Name of the person completing the report
   d. Description of the event:
      - General description of what happened
      - The length of time vaccine may have been affected, if using a DDL
      - Inventory of affected vaccines, including lot numbers and whether purchased with public (e.g., VFC) or private funds
      - List of items in the unit other than vaccines, including water bottles in the refrigerator and/or frozen cooler packs in the freezer
      - Any problems with the storage unit or affected vaccines before the event
      - Other relevant information, such as a cracked door seal in the affected unit or extreme room temperature fluctuations in the storage unit area
4. Implement the facility SOPs to adjust unit temperature to the appropriate range. At a minimum, check the TMD to make sure it is appropriately placed in the center of the vaccines.
5. Contact the state or local health department's immunization program or the vaccine manufacturers per SOPs to determine if it is safe and effective to use the impacted vaccines. Be prepared to provide documentation of the event (e.g., temperature log data) for the best guidance.
6. Complete documentation of the event, including
   a. Action taken
      - What happened to the affected vaccine, and how long it took to act
      - Who was contacted, and what instructions were received
      - What prevention measures were implemented to avoid a similar event
   b. Results
      - Final disposition of affected vaccines (e.g., shortened expiration date per manufacturer, discarded, or returned)

CDC's Vaccine Storage Troubleshooting Worksheet, located in the toolkit's Resources section, can be used to document these steps.

Regular Maintenance of Vaccine Storage Units and Temperature Monitoring Devices

Storage units and TMDs require regular maintenance to ensure proper operation and extend the useful life of the equipment. Check the manufacturer's product information for cleaning instructions and recommended maintenance schedules. Document maintenance tasks and repairs, as indicated in the facility's routine storage and handling plan and SOPs.

Conduct routine maintenance on all vaccine storage units and related equipment to ensure they function at maximum efficiency.

- Check seals and door hinges.
- Clean coils and other components per the manufacturer's directions.
- Manual-defrost freezers should be defrosted when the frost exceeds either 1 cm or the manufacturer's suggested limit. Follow the manufacturer's instructions. While defrosting, store vaccines temporarily in another unit with appropriate freezer temperatures.
- Clean the interior of each unit as needed to discourage bacterial and fungal growth. Do so quickly to minimize the risk of a temperature excursion.
- Test any backup generator quarterly and have it serviced annually.

Troubleshooting Equipment Problems

Adjusting Storage Unit Temperatures

Storage unit temperatures may need to be adjusted over time. In some situations, thermostats may need to be reset in summer and winter, depending on room temperature.

Temperature adjustments should be

- Made by the primary or backup vaccine coordinator, based on information from the TMD and temperature monitoring log.
- Performed at a time when the unit door is not being frequently opened and closed.

> **Adjusting Storage Unit Temperatures**
>
> If using a combination storage unit, note that adjustments to the freezer temperature can adversely affect the refrigerator compartment temperature, possibly resulting in frozen vaccines in the refrigerator.

Remember that temperatures within any storage unit will vary slightly, even with normal use. Therefore, before making any adjustment

- Confirm the unit is securely plugged into a power source.
- Check the temperature inside the storage unit.
- Wait 30 minutes without opening the door to allow the temperature to stabilize, and then recheck it to determine if the thermostat needs to be adjusted.

If there could be an issue with the TMD, use the backup device to confirm the temperature. After confirming that an adjustment is needed,

1. Refer to the owner's manual for detailed instructions.
2. Make a slight adjustment toward a warmer or colder setting by turning the thermostat knob slowly to avoid going outside the correct temperature range.
3. Once the adjustment is made, allow the temperature inside the unit to stabilize for 30 minutes without opening the door.
4. Recheck the temperature.
5. Repeat these steps as needed until the temperature has stabilized
    - Between 2°C and 8°C (36°F and 46°F) for a refrigerator.
    - Between -50°C and -15°C (-58°F and +5°F) for a freezer.
    - Between -90°C and -60°C (-130°F and -76°F) for an ultra-cold freezer.
6. If appropriate for the unit, consider adding extra water bottles to improve temperature stability.



Never leave vaccines in a storage unit that does not maintain temperatures within the recommended range. If the unit is unable to stabilize the temperature within the required range, or if temperatures in the unit consistently fall at the extreme high or low end of the range, the vaccine supply is at high risk of losing its potency. Refer to the facility's SOPs to identify an alternative unit with appropriate temperatures and sufficient storage space until the primary unit can be repaired or replaced.

Repeated Alarm Alerts

If the temperature alarm sounds repeatedly, do not disconnect it until the cause is identified and addressed. Do basic checks of the unit door, power supply, and thermostat settings. If the alarm continues to trigger or the temperature remains outside the range, transfer the vaccines to a backup unit as directed by the facility's SOPs. A repair technician should check the equipment to determine the need for repair or replacement.

Section Four: Vaccine Inventory Management

Proper vaccine inventory management is essential for accurate vaccine ordering and effective stock rotation, ensuring each facility has the necessary vaccines for its patients.

VFC providers and others who administer vaccines purchased with public funds should contact their immunization program for state-specific requirements related to vaccine inventory management. State and local programs that have an immunization information system (IIS) with vaccine inventory accounting functions require VFC providers to use the IIS to track their inventory.

Vaccine Delivery

Scheduling and Receiving Deliveries

Maintaining the cold chain is the first step in vaccine inventory management. Staff members who might accept vaccine deliveries should be trained to immediately notify the primary or backup vaccine coordinator when deliveries arrive. Vaccines must always be immediately checked and appropriately stored upon arrival.

Unpacking Deliveries

Vaccines and diluents must be carefully unpacked, stored at the recommended temperatures, and documented immediately upon arrival.

Do not place an unopened or unpacked shipment box in a vaccine storage unit, as the cool packs shipped with the vaccine may cause the packaged vaccine to become too cold.

Unpacking Vaccine Deliveries

Never leave a vaccine shipping container unpacked and unattended. If vaccines and diluents get too warm, they cannot be used. Be sure all staff members know that vaccine deliveries require immediate attention.

Immediately inspect shipments to ensure receipt of the correct vaccine types and quantities, and to look for any signs of damage.

- Examine the shipping container and vaccines for signs of physical damage.
- Immediately check the cold chain monitor (CCM)—a single-use device that tracks vaccine temperatures during transport—for any signs of a temperature excursion, if one was included. After reviewing, discard the CCM as it cannot be reused.
- Immediately check both the vaccine and diluent expiration dates to ensure the products are not expired or soon to expire.
- Verify the contents against the packing list to ensure they match.
  - For frozen vaccines, the packing list will show the maximum time vaccines can be in transit based on the shipment date.
- If the shipment includes lyophilized (freeze-dried) vaccines, ensure the correct type and quantity of diluents accompany them.

Vaccine Inventory Accounting

Stock records are used to determine the type and number of vaccines each facility should carry to meet the needs of its patients. Stock records help maintain accurate inventory and can be in either paper or electronic form.

- At least once a month and before placing any vaccine orders, count all vaccines and diluent doses to make sure the number of doses in the storage unit matches the number of doses documented in the stock record. Always check expiration dates while counting stock and immediately remove any expired doses.
- Diluents should be documented on a separate stock record. Make sure the number of diluents matches the number of corresponding vaccines.
- If the numbers in the storage unit do not match the doses documented in the stock record, providers should enter the correct number based on the count on a separate line below the old balance on the stock record. Make a note next to the new entry indicating that the count confirmed the new balance, and sign it. Use the corrected balance for calculating future stock quantities.
- If providers receive multiple doses of the same vaccine in the same presentation from the same lot with the same expiration date, they can document these doses as one entry on the stock record. Indicate the total number of doses received, regardless of how many vials or syringes the doses came in. For example, if providers receive 10 single-dose vials of the same vaccine with the same lot number and expiration date, they can make a single entry on the stock record, noting that 10 doses were received.
- If there are discrepancies between the contents and the packing list or other concerns about the contents, immediately notify the vaccine manufacturer. VFC or other providers who receive vaccines purchased with public funds should contact their immunization program.

Best Practices for Recording Vaccine Stock

To keep track of the inventory, use a stock record to account for and document every dose of vaccine.

- Place the stock record outside the storage unit door (or another easily accessible location) and have staff use tick marks to keep a count of every dose removed from the unit.
- Update the stock record weekly and include the vaccine delivery information below:
  - Date of delivery and initials of the person who unpacked the box
  - Vaccine and diluent name and manufacturer
  - Number and expiration date for each lot
  - Number of doses received
  - Condition of each vaccine and diluent upon arrival
  - CCM reading if included in the shipping container
  - Number of doses used
  - Balance of remaining doses after subtracting the amount used

At the end of each month, determine the total number of vaccine and diluent doses used that month and the amount of stock still available. At the end of each year, the stock record shows the number of doses received and used for the year. This information will help determine the facility's needs and guide future ordering to minimize waste and reduce the need for vaccine transfer and transport. It will also help to ensure a sufficient supply to meet patient needs.

Vaccine Ordering

Order and stock only enough vaccine to meet patient needs. Plan ahead.

Order vaccines after verifying current inventory and anticipating patient needs. To reduce the risk of loss during shipment or storage, place smaller, more frequent orders rather than large, infrequent ones.

Storing a larger volume than the facility needs can increase the risk of wasting vaccines if they expire or are compromised in some way (e.g., during shipping incident or due to mechanical failure of a storage unit).

Vaccine orders typically arrive within 1 to 2 weeks; however, delays may occur. When possible, avoid placing last-minute or rush orders to lessen the risk of running out of vaccines. As a general guide, reorder when inventory reaches a 4-week supply.

Best Practices for Vaccine Organization and Storage

- Rotate vaccine and diluent stock at least once a week, as well as each time the facility receives a vaccine delivery. This will ensure that vaccines expiring sooner are used first.
- Remove expired vaccine and diluent immediately from the

Stock Rotation and Removal

Regularly rotate and check vaccine stock for expired doses.

Arrange stock for each vaccine type so that doses with the earliest expiration dates are placed in front of those with later expiration dates. Remove expired vaccines and diluents immediately to avoid inadvertent administration.

Vaccine Disposal

Administration of vaccines necessarily results in waste (e.g., empty vials), and despite best efforts, sometimes unused vaccines must be disposed of. General vaccine disposal guidelines exist for

- Empty vaccine vials – Most are not considered hazardous or pharmaceutical waste and do not require disposal in a biomedical waste container. However, check and comply with state requirements for disposal.
  - While vials are not usually considered hazardous or pharmaceutical waste, an empty rotavirus dispensing tube or oral applicator is considered medical waste and should be disposed of in a medical waste container.
- Expired or compromised vaccine – Sometimes unused vaccine and diluent doses, unopened vials, expired vials, and potentially compromised vaccine may be returned for credit, even if they must be discarded. Contact the immunization program or the vaccine manufacturer for vaccine-specific disposal information.
- Open and broken vials and syringes, manufacturer-filled syringes that have been activated, and vaccine predrawn by providers – These cannot be returned and should be discarded according to state requirements.

Medical waste disposal requirements are set by state environmental agencies. Contact your immunization program or state environmental agency for guidance to ensure the facility's vaccine disposal procedures comply with state and federal regulations.

Understanding Expiration Dates

Properly identifying when a vaccine or diluent expires is essential for managing vaccine inventory and preventing administration errors. All vaccine products have an expiration date (sometimes called an expiry date), which marks the final day the manufacturer guarantees the vaccine will meet standards for strength, quality, and purity. Never administer vaccines past their expiration date.

How Expiration Dates Are Determined

The Food and Drug Administration (FDA) requires manufacturers to submit stability data to support each product's proposed expiration date and storage conditions. These data verify that the vaccine remains potent and safe throughout its labeled shelf life. The expiration date is therefore the last day the manufacturer guarantees full potency and safety.

How to Read Expiration Dates

If an expiration date shows only a month and year, the vaccine may be used through the last day of that month. For example, a product labeled 12/2026 is valid through 11:59 p.m. on December 31, 2026, and expires at 12:00 a.m. on January 1, 2027.

If the expiration date includes a specific day, the vaccine may be used only through the end of that day. For example, a product labeled 6/15/2027 is valid through 11:59 p.m. on June 15, 2027, and expires at 12:00 a.m. on June 16, 2027.

For vaccines requiring reconstitution, the diluent and antigen components may have different expiration dates, even when packaged together.

When Manufacturers Update Expiration Dates

Manufacturers may extend an expiration date when new stability data become available. If the expiration date is extended beyond what appears on the label, manufacturers typically communicate the change through the FDA's Expiration Dating Extension website or through mass communications such as "Dear Health Care Provider" letters. Manufacturer-extended expiration dates should be written on the vial or manufacturer-filled syringe, initialed by the person making the change, and recorded in inventory records.

If a vaccine has been exposed to inappropriate storage conditions such as a temperature excursion, the manufacturer might determine the vaccine can still be used but expires earlier than the date on the label. The manufacturer-shortened expiration date must be written on the vial or manufacturer-filled syringe, initialed, and documented in inventory records. This ensures clarity for all staff and prevents inadvertent use of compromised vaccine.

Understanding Beyond-Use Dates

Some vaccines must be used before the expiration date because they have a beyond-use date (BUD)—an earlier deadline after which the product should not be used. Unlike the manufacturer-set expiration date, the BUD is calculated by the provider based on manufacturer guidance.

The BUD is the last date or time a vaccine can be safely used after it has been

- Moved from one storage state to another (e.g., frozen to refrigeration).
- Prepared for administration (e.g., reconstituted).
- First punctured with a needle (for multidose vials).

The BUD varies by product and by type of transition. A BUD that falls on the same day might instead be called the beyond-use *time*.

Not all vaccines have a BUD. The manufacturer's package insert or Emergency Use Authorization (EUA) Fact Sheet for Healthcare Providers will specify when a BUD applies. Always review these materials to confirm BUD requirements.

Calculating a BUD

- Begin counting with day 0, the date the vaccine was transitioned (e.g., moved to refrigerator).
- Calculate the number of days or hours allowed, based on manufacturer guidance.
- Write the BUD on the vaccine label and initial it.
- The BUD replaces the manufacturer's expiration date, but never extends it. Always use the earlier date.

When a BUD Applies

Vaccines transitioned between storage states

Once a vaccine is moved from one storage condition to another, it has a limited time for use. Frozen vaccines must be thawed before administration. Always follow the guidance in the manufacturer's package insert for thawing instructions and the correct BUD.

- *Example:* Previously frozen lyophilized varicella vaccine may be stored in the refrigerator for up to 72 hours before reconstitution. Once placed in refrigeration, the unopened vial's BUD is 72 hours.
- *Example:* Moderna RSV vaccine, mResvia, may be stored in the refrigerator for up to 90 days or at room temperature for up to 24 hours before administration. In this case, the syringe's BUD is 90 days refrigerated or 24 hours at room temperature.

Reconstituted vaccines

Once mixed with its diluent, a vaccine has have a short window for use. If not administered immediately, follow manufacturer guidance for storage conditions and time limits.

- *Example:* Varicella-containing vaccines must be administered within 30 minutes of reconstitution. The beyond-use time is 30 minutes.
- *Example:* MMR vaccines (except MMRV) must be administered within 8 hours of reconstitution. The beyond-use time is 8 hours.

Multidose vials

Some multidose vials must be discarded a certain number of days after first puncture with a needle.

- *Example:* If the package insert states the vaccine must be discarded 28 days after first puncture, and the vial is first punctured on 06/01/2026, the BUD is 06/29/2026. Do not use the vaccine after this date.

Monitoring BUDs

Before preparing vaccines, staff must check the BUD on the vial or syringe. In addition, vaccine coordinators should create and maintain a system for tracking BUDs, such as a visible log near storage units, to ensure timely vaccine use and proper disposal. CDC has product-specific storage and BUD labels to help providers comply with vaccine storage requirements.

Section Five: Vaccine Preparation

Vaccine preparation is the next-to-last step in the cold chain. Handling vaccines with care is equally as important as storing them properly. Preparation and administration guidance depends on the type of vaccine presentation.

Types of Vaccine Presentations

- Single-Dose Vials

  A single-dose vial (SDV) contains one dose and should be used one time for one patient. SDVs typically do not contain antimicrobial preservatives, making them susceptible to contamination and potential sources of infection when used improperly. Never combine leftover vaccine from one SDV with another. Open an SDV when you are ready to use it. Before removing the protective cap, always check the vial to verify it's the correct vaccine. Once the cap is removed, the vaccine must be used because it may not be possible to determine if the rubber seal has been punctured. At the end of the workday, discard all unused SDVs without a protective cap.

- Multidose Vials

  A multidose vial (MDV) contains more than one dose of vaccine. Because MDVs typically contain a preservative to help prevent microorganism growth, they can be entered or punctured more than once. Only the number of doses indicated in the manufacturer's package insert should be withdrawn from the vial. After the maximum number of doses has been withdrawn, the vial should be discarded, even if there is vaccine left and the expiration date has not been reached.

  MDVs can be used through the expiration date printed on the vial, unless the vaccine is contaminated or compromised in some way or there is a BUD noted in the package insert. The BUD should be noted on the vaccine vial along with the initials of the person making the calculation. Never use partial doses from two or more vials to obtain a dose of vaccine.

  Based on safe injection practices, CDC does not recommend using vial adapters, spikes, or other vial access devices when withdrawing vaccine from a multidose vial. Leaving a vial access device inserted into a vial septum provides a direct route for microorganisms to contaminate the vaccine.

- Manufacturer-Filled Syringes

  A manufacturer-filled syringe (MFS) is prepared and sealed under sterile conditions by the manufacturer. Activate an MFS by removing the syringe cap or attaching the needle only when ready to use it. An MFS does not contain a preservative to help prevent the growth of

Best Practices for Vaccine Preparation

Follow standards of medication administration:

- Use a designated, clean medication area that is not adjacent to areas where contaminated items are placed. For example, do not prepare vaccines in a specimen collection area.
- Follow strict aseptic medication preparation practices.
- Use a separate, sterile needle and syringe for each injection.
- Prepare vaccines for one patient at a time.
- Before preparing the vaccine, always check the
  - Vial to ensure it is the correct vaccine.
  - Expiration date and beyond-use date/time to ensure neither has passed.
- Prepare and draw up vaccines just before administration.
- Providers should administer vaccines they have prepared themselves. This is a quality control and patient safety issue, as well as a standard of medication administration.

microorganisms. Once the sterile seal has been broken, the vaccine should be used or discarded by the end of the workday.

- Manufacturer-Filled Nasal Sprayer
  Live, attenuated influenza vaccine (LAIV [FluMist]) is administered by the intranasal route using a manufacturer-filled nasal sprayer. A dose-divider clip, located on the plunger, separates the total vaccine dose of 0.2 mL into two equal parts of 0.1 mL each.

- Oral Applicator
  Because oral vaccines are prepared differently and may have different types of oral applicators, providers should be familiar with how to prepare and administer the brand stocked in their facility.

Vaccine Reconstitution

Before being administered, lyophilized (freeze-dried) vaccines such as MMR vaccines or recombinant zoster vaccine (Shingrix) are in either powder or pellet form and must be mixed with a liquid (diluent) in a process known as "reconstitution." Diluents vary in volume and composition and are specifically designed to meet volume, pH balance, and chemical requirements of their corresponding vaccines. Some diluents contain a vaccine component or an adjuvant needed for vaccine effectiveness.

- Establish a process to keep diluents and their corresponding vaccines together if storage requirements do not differ. Sometimes all vaccine components are package together; other times the diluent is separate.

- Never freeze diluents. All diluents can be stored at refrigerated temperatures, and some can also be stored at room temperature. Always refer to the manufacturer's package insert for product-specific guidance on storage and handling.

- Before reconstitution, always check the expiration date of both the vaccine and diluent.
  - Each vaccine component has a separate lot number and expiration date.
  - Never use an expired diluent or vaccine.
  - VFC or other providers who have vaccines purchased with public funds and must transfer vaccine to another facility so it can be used before it expires, should contact their immunization program for guidance on vaccine transport.

- Use only the diluent provided with the vaccine.
  - Diluents are not interchangeable unless specified by the manufacturer.
  - Using the wrong diluent is a serious vaccine administration error that may result in incorrect doses and possible contamination.

- Never use a stock vial of sterile water or normal saline to reconstitute vaccines. Even if the diluent is composed of sterile water or saline, use only the specific diluent supplied with the vaccine.

- Never administer vaccine reconstituted with the wrong diluent. If an incorrectly reconstituted vaccine is administered, contact the immunization program or the vaccine manufacturer for revaccination and safety guidance.

Predrawing Vaccine

Draw up vaccines only at the time of administration. Predrawing vaccines is discouraged for many reasons, including

- Risk of compromising the stability of the vaccine. Disposable syringes are meant for administering vaccines, not for storing them.
- Increased risk for vaccination errors if predrawn syringes are labeled improperly, or if one person draws up vaccine doses while others administer them.
- Vaccine wastage if predrawn doses do not match the number of vaccine recipients.

Use Manufacturer-Filled Syringes

As an alternative to predrawing vaccines, use manufacturer-filled syringes for large vaccination clinics.

In rare circumstances, such as during large off-site vaccination clinics, predrawing vaccine doses might be the only option. If vaccines must be predrawn, adhere to the following best practices:

- Set up a separate administration station for each vaccine type.
- Draw up vaccines only after arriving at the vaccination site.
- Once each predrawn dose is prepared, label the syringe with the vaccine name and dosage, the beyond-use date and time, lot number, and the preparer's initials. Additional pertinent information can be added, such as age range or if the dose is intended for use as primary or booster dose.
- Each vaccinator should draw up only one MDV at a time, regardless of whether it contains 2 or 10 doses. Likewise, no vaccinator should activate more than 10 MFSs at a time or predraw more than 10 doses from SDVs.
- Predraw reconstituted vaccine into a syringe only when ready to administer, as it has limited beyond-use time. If not used within 30 minutes, follow the manufacturer's guidance for storage and time limits.
- Monitor patient flow to avoid drawing up unnecessary doses.
- Store predrawn syringes at manufacturer-recommended temperatures. Discard any doses that were stored improperly.
- Discard all remaining predrawn syringes no later than the end of the workday. Never transfer predrawn reconstituted vaccine back into a vial.

Section Six: Non-Emergency Vaccine Transport

Non-emergency vaccine transport guidance might vary by vaccine product. Carefully review manufacturer guidance for each vaccine to ensure the cold chain is preserved.

For this document's purpose, "transport" involves the movement of vaccine between providers or other locations over a short distance and time frame and is appropriate for events such as off-site clinics or to ensure vaccines that are about to expire can be used rather than wasted.

VFC providers and others who administer vaccines purchased with public funds should contact their immunization program for state-specific requirements related to vaccine transport.

General Principles of Transport

Vaccine transport to off-site or satellite facilities is different from both shipping and emergency transport. Shipping usually involves a professional carrier and a longer distance and timeframe for moving vaccines between locations. Emergency transport usually involves relocating vaccines to protect them when a facility's ability to store vaccines is compromised because of a power outage, for example.

Vaccine Transport

Vaccines should not be routinely transported.

In instances where non-emergency transportation of vaccines is necessary, take precautions to protect the vaccines by using appropriate packing materials and procedures that provide the maximum protection.

Use a transport temperature monitoring log to document temperatures and how long the vaccine is in the portable storage container. Regardless of how the vaccine is transported (car, professional carrier, snowmobile, boat, small plane, etc.), if vaccines are packed by a provider, the BUD should be applied using the manufacturer's guidance. For example, if a frozen vaccine may be stored at refrigerated temperatures for 24 hours, transport is included in this time frame.

Best Practices for Protecting Vaccine Supply

- Vaccine that will be used at an off-site or satellite facility should be delivered directly to that facility.
- When delivering to a specific site, adequate storage equipment and staff should be in place to provide appropriate oversight.
- If delivery to the specific site is not possible, then vaccine can be transported in a stable storage unit and monitored with a TMD.
- Limit the total time for transport alone or transport plus clinic workday to a maximum of 8 hours, unless the manufacturer provides different guidance.* For example, if transport to an off-site clinic is 1 hour each way, the clinic may run for up to 6 hours.
- If the facility doesn't have the capacity to refrigerate the vaccines, a portable vaccine storage unit or qualified container and packout may be used with a DDL.
- Develop an emergency plan or SOPs for transporting vaccines and include procedures and protocols for packing and transport.

*Follow the manufacturer's guidance if the transport limitation differs.

Ensure your facility has enough supplies to transport your largest annual inventory (e.g., during respiratory virus season). Appropriate materials include

- Vaccine transport containers, such as
  - Portable vaccine refrigerator/freezer/ultra-cold freezer units (preferred option).
    - Qualified containers and packouts if appropriate portable refrigeration units are not available.
    - Soft-sided containers specifically engineered for vaccine transport are acceptable. Do not use commercially available soft-sided food or beverage coolers, as most are poorly insulated and are likely to be affected by room or outdoor temperatures.
- Coolant materials, such as
  - Phase change materials (PCMs) that can be conditioned between 4°C and 5°C (39°F and 41°F).
  - Conditioned frozen 16.9- or 8-ounce water bottles.
- Insulating materials such as bubble wrap and corrugated cardboard—enough to form two layers per container.
- TMDs for each vaccine transport container.

Equipment and Materials for Vaccine Transport

It is always safest to have vaccines delivered directly to a facility with a vaccine storage unit ready to receive the shipment, but this is not always possible. If necessary, vaccines may be transported using a portable vaccine refrigerator with a temperature monitoring device placed with the vaccines. If a portable vaccine refrigerator is not available, qualified containers and packouts with a TMD in each container can be used. For transport to an off-site clinic, bring only what is needed for the workday.

Important note: *Do not transport vaccines using the original shipping materials from the distributor or manufacturer. Commercial distributors and manufacturers use validated* packouts *with their vaccine shipments. The packout materials used are conditioned to certain temperatures and have specifically designed placement. Reusing them can compromise the cold chain and jeopardize vaccine viability.*

Non-Emergency Transport Systems

Container	Transport for Off Site Clinic, Satellite Facility, or Relocation of Stock
Portable Vaccine Refrigerator or Freezer	Yes
Qualified Container and Packout	Yes
Conditioned Water Bottle Transport System	No
Manufacturer's Original Shipping Container	No
Food/Beverage Coolers	No

Coolants for Transport

PCMs between 4°C and 5°C (39°F and 41°F) can also be purchased to maintain proper temperatures. Follow the manufacturer's instructions for use to reduce the risk of freezing vaccines during transport.

Do not use frozen gel packs or coolant packs from original vaccine shipments to pack refrigerated vaccines. They can still freeze vaccines even if they are conditioned or appear to be "sweating."

Transport Planning and Preparation

Improper packing for transport is as risky for vaccines as a failed storage unit.

Include vaccine packing and transport guidance in routine and emergency storage and handling sections of the facility's SOP.

At a minimum, include the following in all staff-facilitated transport procedures and protocols:

- In advance, identify trained staff to pack vaccines, as well as primary and backup drivers and vehicles for transport.
- Consider renting a refrigerated truck for transporting a large quantity of vaccines or transporting vaccines for an extended distance.
- Take an inventory of vaccines and record actions taken to protect the vaccines during transport.
- Open storage unit doors only when necessary and only after completing all preparations for packing and moving vaccines.
- If using a company or personal vehicle, transport vaccines only inside the passenger cabin, not in the trunk or truck bed, which may be too hot or too cold.
- Move transport containers directly to a vehicle that is already at a comfortable temperature, neither too hot nor too cold.
- Avoid leaving containers in areas exposed to direct sunlight.
- Check vaccine temperature upon arrival at the alternative vaccine storage facility, and immediately store vaccines at recommended temperatures.
- Check with the immunization program for additional guidance and resources on emergency transport of vaccines, particularly in major emergencies.

Best Practices for Transporting mRNA Vaccines

- Transport vials and MFSs in the original packaging whenever possible.
- Protect vials and MFSs as much as possible from drops, shocks, and vibration.
- Secure storage containers during transport.
- Protect from light. Avoid exposing mRNA vaccines to direct sunlight or ultraviolet (UV) light when handling.
- Refer to the manufacturer's package insert for additional guidance.

Transporting Opened Multidose Vials

In rare circumstances, a partially used vial may need to be transported to or from an off-site/satellite facility operated by the same provider. In these instances, the cold chain must be properly maintained, and use after transport must align with expiry date or BUD. However, a partially used vial cannot be transferred from one provider to another, or across state lines. Contact your immunization program for specific state or local regulations impacting this activity.

Transporting Predrawn Syringes

It is best practice to transport vaccine in unopened vials or manufacturer-filled syringes. However, there may be rare instances, such as large off-site vaccine clinics, when the only option is to transport vaccines in predrawn syringes. Predrawn syringes should be properly labeled and stored according to the manufacturer's guidance. Additional information on predrawn vaccine is found in Section 5.

Transporting Vaccine Diluents

Transport diluents with their corresponding vaccines to ensure there are always equal amounts of vaccines and diluents for reconstitution. Follow the manufacturer's guidance for specific temperature requirements.

If diluents stored at room temperature (20°C to 25°C [68°F to 77°F]) are going to be transported with refrigerated vaccines, they should be refrigerated in advance for as long as possible so they do not raise the container temperature when placed with refrigerated vaccines.

> Never freeze diluents—not even during transport. Place an insulating barrier like bubble wrap between the diluents and conditioned water bottles or phase change materials.

Transporting Frozen Vaccines

If frozen vaccines must be transported, use a portable vaccine freezer unit or qualified container and packout that maintains temperatures between -50°C and -15°C (-58°F and +5°F) or between -90°C and -60°C (-130°F and -76°F) for ultra-cold transport.

Follow these steps for transporting frozen vaccines:

- Place a TMD (preferably with a buffered probe) in the container as close as possible to the vaccines.
- Immediately upon arrival at the destination, unpack the vaccines and place them in a freezer at a temperature range between -50°C and -15°C (-58°F and +5°F) or -90°C and -60°C (-130°F and -76°F) for ultra-cold freezer storage. Any stand-alone freezer that maintains these temperatures is acceptable.
- Record the
  - Time that vaccines are removed from the storage unit and placed in the transport container.
  - Temperature during transport.
  - Time at the end of transport when vaccines are placed in a stable storage unit.

Do not use dry ice, even for temporary transport or storage. Dry ice might expose frozen vaccines to temperatures colder than -50°C (-58°F).

Temperature Monitoring During Transport

Use a continuous TMD, preferably a DDL with the capability to measure minimum/maximum temperatures, for monitoring and recording temperatures while transporting vaccines.

- Use a TMD or DDL that has an accuracy of ±0.5°C (±1°F).
- Place the buffered temperature probe directly with the vaccines.
- Keep the TMD display on top of vaccines so the temperature can be easily seen.
- Record the time and minimum/maximum temperature at the beginning of transport.

Temperature Monitoring After Transport

Immediately upon arrival at the destination, store vaccines in an appropriate storage unit with a TMD.

Be sure to follow these guidelines for monitoring and recording storage unit temperature:

- If the device displays minimum/maximum temperatures, this information should be checked and recorded as soon as the vaccines are stored.
- VFC providers must review and document temperature data every hour using a DDL with a digital display and a probe in buffered material.
- If the device does not display minimum/maximum temperatures, then the current temperature should be checked and recorded at least twice daily (at the start and end of the workday).

If vaccines cannot be stored in an on-site storage unit, they should be kept in the portable vaccine storage unit using the following guidance:

- If using a DDL that records minimum/maximum temperatures, check and record temperatures each time the portable vaccine storage unit is opened. Do not open the unit just to check the temperature.
- If the TMD measures current temperatures only, place the probe as close as possible to the vaccines, and check and record temperatures hourly.
- Keep the container closed as much as possible.
- In off-site clinic settings, each person preparing and administering vaccines should remove no more than one multidose vial or 10 doses at a time.

Section Seven: Emergency Vaccine Storage and Transport

Emergency vaccine storage and transport guidance may differ from non-emergency situations. To ensure proper cold chain maintenance during emergencies, carefully review both transport sections in this toolkit, along with the manufacturer's guidance for impacted vaccines.

Emergencies such as equipment failures, power outages, severe weather conditions, or natural disasters sometimes happen without warning and might compromise vaccine storage conditions. Providers should make plans for vaccine storage or transportation during emergencies. The Center for Biologics Evaluation and Research (CBER) at the Food and Drug Administration (FDA) offers information concerning the storage and use of temperature-sensitive biological products affected by flooding or a temporary power outage.

VFC providers and others who administer vaccines purchased with public funds should contact their immunization program for state-specific requirements related to vaccine transport.

Power Outages

Temperature Monitoring During a Power Outage

If the storage unit has an external temperature monitoring display that can be checked without opening the unit door, take the following steps:

- Record room temperature (if possible) and the temperature inside the unit as soon as the power goes out.
- Record minimum and maximum temperatures reached inside the unit during the outage.
- Temperature excursions should be avoided, if possible, by using emergency plans and SOPs for transport and alternative storage. However, if temperatures fall outside of the recommended range, providers should follow procedures for temperature excursions.

If it is not possible to monitor the temperature inside the unit without opening the door, and there is no access to an alternative facility with power for vaccine storage or established emergency vaccine storage procedures, wait until power is restored before taking the following steps:

- Record the room temperature (if possible) and the temperature inside the unit.
- If using a DDL, document the length of time the power was off and the minimum and maximum temperatures during that period.

Vaccine Storage During Emergencies

- During an emergency, vaccines may remain inside a nonfunctioning unit if appropriate temperatures are maintained. With the unit door closed, monitor the DDL to determine when additional action should be taken.
- During a power outage, only open the storage unit door if
  - Power is restored or
  - It is determined that the vaccines need to be packed in separate storage containers and/or transported to an alternative storage facility.

- If temperatures inside the unit have already fallen outside of the recommended range, follow procedures for temperature excursions. If possible, move the vaccines to an alternative storage unit or location where they can be stored at appropriate temperatures. Make sure to separate and mark these vaccines "DO NOT USE—TEMPERATURE EXCURSION" until a decision can be made about whether the vaccines can still be used.

Generators and Backup Battery Power Sources

Having an on-site generator prevents the need to transport vaccines to an alternative storage facility during a power outage.

- Test the generator quarterly and have it serviced annually.
- Keep sufficient fuel on hand to continuously run the generator for at least 72 hours.

A backup battery power source can be used in lieu of a generator.

- Test backup battery power sources quarterly and have them serviced annually.
- Check the manufacturer's guide for testing.

Accessing Your Facility After-Hours

Emergency situations can arise outside of normal business hours, so providers should maintain a relationship with the facility's building manager or security staff. Ensure all staff members are familiar with emergency SOPs, including after-hours roles and responsibilities. The facility's storage and handling SOPs should include instructions for accessing the vaccine storage units when the building is closed, with a building map/diagram and locations of

- Spare batteries
- Flashlights
- Keys
- Locks
- Circuit breakers
- Emergency transport equipment and materials

Copies of the emergency SOPs should be stored with the emergency supplies, kept with vaccine coordinator staff at their homes, and shared with others as needed, such as security officers or building managers.

Vaccine Transport During Emergencies

Emergency transport usually involves relocating vaccines to protect them when a facility's ability to store vaccines is compromised because of a power outage, weather event, or other mishap.

During emergencies, two provisional vaccine transport options can be used:

- A transport system that uses conditioned water bottles and hard-sided insulated containers or Styrofoam™, in conjunction with The *Packing Vaccines for Transport During Emergencies* tool
- Manufacturers' original shipping containers (only as a last resort)

Transporting Vaccines During an Emergency

The *Packing Vaccines for Transport During Emergencies* tool describes a system in which properly conditioned frozen water bottles can be used as a coolant when transporting vaccines during emergency situations.

Container	Transport for Emergencies Only
Portable Vaccine Refrigerator or Freezer	Yes
Qualified Container and Packout	Yes
Conditioned Water Bottle Transport System	Yes
Manufacturer's Original Shipping Container	Yes (last resort only)
Food/Beverage Coolers	No

Alternative Storage Facility

No piece of vaccine storage equipment is infallible. At some point, equipment will fail because of a power outage, breakdown, or normal wear and tear.

Establish a working agreement with at least one alternative storage facility, even if providers have a generator as backup equipment.

- Ensure 24-hour access to this facility. Hospitals, long-term care facilities, state depots, the Red Cross, fire stations, packing plants, grocery stores, funeral homes, and commercial pharmacies are some of the facilities that might be able to assist.
- Ensure the alternative storage facility has a dedicated unit or shared space that can maintain temperatures at the appropriate range. Please note that shared spaces may not be able to maintain temperatures within the recommended ranges for the vaccine supply.
- Before packing any vaccines, confirm with the alternative vaccine storage facility that they can accept them for storage.

Providers may also choose to have a backup storage unit so that vaccine might not have to be packed or moved to an alternative storage facility if the primary storage unit fails.

Temperature Monitoring at Alternative Storage Sites

Vaccine temperature should be maintained when stored at an alternative facility during an emergency. Temperatures should be monitored and documented in temperature logs when storing vaccines during an emergency. Sometimes getting temperature logs before an emergency is not feasible. However, the provider should confirm that the emergency unit can maintain the required temperature range. To confirm, locate online specifications for the make and model of the storage unit.

If an Alternative Vaccine Storage Facility Is Not Available

If providers cannot find an alternative vaccine storage facility within a reasonable distance or cannot reach the alternative facility, they can use portable vaccine refrigerator/freezer units (if power source is available), qualified containers and packouts, or a hard-sided insulated container or Styrofoam™ using the *Packing Vaccines for Transport during Emergencies* tool. Always place a TMD with the vaccines, and carefully monitor the TMD to ensure vaccines remain within the appropriate temperature range. Temporary storage containers should remain closed, and vaccines can only be stored safely for as long as the containers are validated to maintain proper storage temperatures.

Glossary

Beyond-Use Date (BUD)	The last date or time a product can be safely used after it has been moved from one storage state to another (e.g., frozen to refrigerated) or prepared for administration (e.g., reconstituted). The BUD is calculated by the provider and should never exceed the manufacturer's expiration date.
Buffered temperature probe	A temperature probe designed to prevent false excursions by protecting the thermometer from sudden changes in temperature that can occur when opening a refrigerator door. A probe is "buffered" by immersing it in a vial filled with liquid (e.g., glycol, ethanol, glycerin), loose media (e.g., sand, glass beads), or a solid block of material (e.g., Teflon®, aluminum).
Calibration	Professional measurement of the accuracy of the reading from a temperature monitoring device against nationally accepted standards.
Cold chain	A temperature-controlled supply chain that includes all vaccine-related storage equipment and procedures.
Cold chain monitor (CCM)	Single-use device that monitors the temperature inside a vaccine shipping container. CCMs should be thrown away after being checked. CCMs are stored in a separate compartment of the shipping container (a CCM might not be included when vaccines are shipped directly from the manufacturer).
Conditioned water bottles	Frozen water bottles that have been submerged under lukewarm water until the ice block inside can spin freely.
Digital data logger (DDL)	An electronic device that records data digitally over time or in relation to location either with a built-in or external instrument or sensor.
Diluent	A diluting agent (e.g., a liquid) added to reconstitute lyophilized vaccine before administration. Manufacturers of these vaccines also supply the matching diluent. Some diluents contain a vaccine component or an adjuvant needed for vaccine effectiveness.
Dormitory-style (bar-style) storage unit	A combination refrigerator/freezer unit with one exterior door and an evaporator plate (cooling coil), which is usually located inside an icemaker compartment (freezer) within the refrigerator. These units have been shown to pose a significant risk of freezing vaccines, even when used for temporary storage.
Expiration (expiry) date	The last day that the manufacturer guarantees the product's potency and safety; therefore, the final day it can be administered.
Fan-forced air circulation	Technology using powerful fans or multiple cool air vents inside the unit that promote uniform temperature and fast temperature recovery.

Household-grade storage unit	A storage unit that is primarily sold for home use.
Lyophilized	Freeze-dried; usually referring to a vaccine that is freeze-dried into a powder or wafer.
Minimum/maximum temperature	A vaccine storage unit's coldest and warmest temperature reading during a set period of time.
Packout	See *Qualified container and packout*.
Pharmaceutical-grade unit	A unit that is specifically designed to store pharmaceuticals or biologics.
Phase change materials (PCMs)	Engineered packing supplies that help control container temperatures during vaccine transport or shipping.
Portable vaccine storage unit	A type of powered refrigerator or freezer unit specifically designed for use during vaccine transport. These are passive units that require a power source to function. Please note that some active units are "qualified" to maintain desired temperatures for a set amount of time in the event of a power loss.
Potency	A vaccine's strength or effectiveness. In the context of this toolkit, potency refers to a vaccine's response to environmental conditions.
Presentation	The physical form in which a vaccine is supplied by the manufacturer: single-dose vial, multidose vial, manufacturer-filled syringe, etc.
Purpose-built unit	A unit that is specifically designed to store vaccines.
Qualified container and packout	A type of container and supplies specifically designed for use when packing vaccines for transport. These containers are "qualified" through laboratory testing under controlled conditions to ensure they achieve and maintain desired temperatures for a set amount of time.
Reconstitution	Process of adding a diluent to a dry ingredient to make it a liquid.
Standard operating procedures (SOPs)	A set of step-by-step instructions compiled by an organization to help workers carry out complex routine or emergency operations. SOPs aim to achieve efficiency, quality output, and uniformity of performance, while reducing miscommunication and preventing failure to comply with industry regulations and best practices.
Stand-alone storage unit	A storage unit that operates independently of any other device or system for its desired function. For example, a refrigerator that functions only as a refrigerator or a freezer that functions only as a freezer.

Temperature excursion	Any temperature reading that is outside the recommended range for vaccine storage as defined in the manufacturer's package insert.
Tolerance	Compliance with nationally accepted standards for the calibration limits of temperature monitoring equipment. The equipment can be considered either "in" or "out" of tolerance.
Traceability	An unbroken chain of measurements and associated uncertainties.
Uncertainty	The quantification of doubt about the measurement result.
VFC awardees	The 63 state, local, and territorial immunization programs that receive operational funding from the CDC to implement and oversee their VFC Programs.

Vaccine Storage and Handling Toolkit Addendum

for SNS-supplied Jynneos



JULY 2026

Disclaimer: *Use of trade names and commercial sources in the addendum is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services (DHHS), the U.S. Public Health Service (PHS), or the Centers for Disease Control and Prevention (CDC). Terms, such as CDC-compliant, are sometimes used in equipment vendor marketing materials or on their websites. In this context, "compliance" and related terms may lead consumers to incorrectly believe that CDC has independently assessed and verified the quality of these products. CDC is not authorized to assess, validate, verify, or endorse the products or services of private companies. Should providers encounter this type of language in vendor marketing materials, please keep in mind that CDC has not validated any product or service for compliance with vaccination provider requirements or standards as outlined in the Monkeypox Vaccination Provider Agreement.*

Purpose and Background

This addendum to the Vaccine Storage and Handling Toolkit provides information, recommendations, and resources to assist providers with meeting the requirements of the Department of Health and Human Services (HHS) Monkeypox Vaccination Program Provider Agreement for storing and handling **Jynneos**, a monkeypox vaccine.

Two vaccines, Jynneos and ACAM2000, are licensed by the Food and Drug Administration (FDA) for the prevention of monkeypox. Jynneos was the primary vaccine deployed from the Strategic National Stockpile (SNS) during the domestic monkeypox outbreak response. **This addendum focuses on storage and handling guidance for HHS-supplied Jynneos from the SNS.** For clinical guidance on the use of Jynneos, please refer to CDC's Clinical Considerations for Monkeypox Vaccines website.

Provider Agreement Requirements

The HHS Monkeypox Vaccination Program Provider Agreement is expected to continue until all HHS-supplied Jynneos lots have been used or reach their expiration. Providers using HHS-supplied Jynneos vaccine received before August 30, 2024 (when HHS distribution ended) must follow the requirements in the Provider Agreement. Providers must be knowledgeable about and comply with the storage and handling guidance and best practices detailed in CDC's general *Vaccine Storage and Handling Toolkit*.

The Provider Agreement requires providers to

- Store and handle Jynneos under proper conditions, including maintaining cold chain conditions and chain of custody at all times in accordance with the Emergency Use Authorization (EUA) Fact Sheet for Healthcare Providers, manufacturer's vaccine package insert, and CDC's storage and handling guidance.
- Monitor storage unit temperatures at all times using equipment and practices that comply with CDC's vaccine storage and handling guidance.
- Comply with immunization program guidance for handling temperature excursions.
- Monitor and comply with vaccine expiration dates and beyond-use dates/times.
- Preserve all vaccine management records for at least three years, or longer if required by state, local, or territorial law.

Emergency Use Authorization (EUA)

On December 23, 2024, the FDA clarified that the authorized use of Jynneos under the Emergency Use Authorization (EUA) applies to both commercial and HHS-supplied lots of Jynneos. Additional information about the EUA can be found on the FDA's Emergency Use Authorization website.

Expiration Date Extension

On October 18, 2024, FDA approved an expiration date extension from October 31, 2024, to August 31, 2026, for **lots FDP00017, FDP00018, FDP00019,** and **FDP00020** when maintained at -25°C to -15°C. These are the only remaining Jynneos lots deployed from the SNS that have not reached their expiration.

The original expiration date for Jynneos vaccine is printed on its original carton label. Any subsequent expiry extensions (for commercial and SNS-deployed doses) can be found on the FDA's Expiration Dating Extension website. The updated expiration date should be written on the packaging and the vial labels along with the initials of the person making the change. Providers should also include the updated expiration date in their inventory management system. A listing of all SNS-deployed Jynneos lots with their expiration dates can be found on SNS's Monkeypox Vaccines and Treatment website.

Beyond-Use Date (BUD)

Per the Jynneos package insert, the standard beyond-use date (BUD) after thawing is 4 weeks when the intact, unpunctured vials are maintained at 2°C–8°C. To allow operational flexibility for maximal use of vaccine, the FDA amended the EUA to authorize up to 8 weeks of BUD on certain lots of Jynneos when kept refrigerated after thawing. The 8 weeks of BUD apply to the **four lots** that received expiry extension to August 21, 2026: **FDP00017, FPD00018, FDP00019,** and **FPD00020**.

Providers should track the BUD to ensure vaccine is not used after the BUD has been reached. CDC has product-specific storage and BUD labels to help providers comply with vaccine storage requirements.

Key BUD Guidance

- The BUD must not exceed the expiration date of the vaccine.
  - If the expiration date is **before** the calculated BUD, the expiration date is the final date of use.
  - If the expiration date is **after** the calculated BUD, the BUD should be written on the original packaging and the vial label, along with the initials of the person making the calculation.
- If a frozen Jynneos vial is intended for intradermal administration*, it will have two BUDs:
  - When a vial is thawed (i.e., moved from the freezer to the refrigerator), an 8-week BUD begins.
  - Once the thawed vial is first punctured, the 8-week BUD is replaced by a 8-hour BUD.
- For complete details, refer to the Jynneos Storage and Handling Summary in this addendum.

* The FDA-approved standard regimen is a 0.5 mL subcutaneous dose for persons ages 18 years and older. Under the EUA, a 0.5 mL subcutaneous dose may be administered to persons under the age of 18 years, and a 0.1 mL intradermal dose may be administered to adults aged 18 years and older. From August 2022 to February 2023, the intradermal route was preferred to extend vaccine supply while maintaining immunogenicity. Because vaccine supply is adequate now, providers can preferentially administer Jynneos via the subcutaneous route.

Jynneos Storage and Handling Summary

Product: Jynneos (Smallpox and Monkeypox Vaccine, Live, Non-replicating)

Manufacturer: Bavarian Nordic A/S

Manufacturer Website: jynneos.com

Manufacturer Phone Number: 1-844-422-8274

Manufacturer's Package Insert and Supporting Documents:
www.fda.gov/vaccines-blood-biologics/jynneos

Emergency Use Authorization (EUA) Documents:
www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#monkeypoxvaccines

CDC's Clinical Considerations for Monkeypox Vaccines:
www.cdc.gov/monkeypox/hcp/vaccine-considerations/vaccination-overview.html

Vaccine Storage

Jynneos (one-vial presentation) can be stored in either a freezer or refrigerator, following routine storage and handling guidance in CDC's *Vaccine Storage and Handling Toolkit*. Keep vials in their original packaging to protect them from light. Follow specific guidance for each storage condition below:

- **Frozen:**
  - Unpunctured vials may be stored frozen between -25°C and -15°C (-13°F and +5°F) until the expiration date.
    - Note: Jynneos has a narrower storage temperature range than many frozen vaccines, some of which can be kept as cold as -50°C (-58°F). If you store Jynneos alongside other frozen vaccines, **ensure the storage unit temperature does not fall below -25°C.**
- **Refrigerated:**
  - Unpunctured vials may be stored in the refrigerator between 2°C and 8°C (36°F and 46°F) for 4 weeks after thawing. Certain lots may be stored in the refrigerator between 2°C and 8°C for 8 weeks after thawing.
    - Use vaccine vials stored in the refrigerator before removing vials from the freezer.
    - Do not re-freeze a vial once it has been thawed.
    - Track the BUD by using CDC's Jynneos BUD label.
- Because Jynneos is approved for use as a single-dose vial, it does not contain preservatives. If intradermal administration is necessary, vials must be used or discarded after 8 hours of initial vial puncture. Punctured vials must be labeled with the calculated BUD and staff initials and stored at refrigerated temperatures (between 2°C and 8°C). Return the vial to the refrigerator after drawing up each intradermal dose.

Vaccine Transport

- **Frozen (preferred):**
  Jynneos vaccine should be transported frozen between -25°C and -15°C (-13°F and +5°F) within 72 cumulative hours. For example, vaccine transported for 2 hours today has 70 hours of transport time remaining.
  - Transport by using a portable freezer or qualified container and packout (appropriate packing materials) with a digital data logger (DDL) to maintain temperatures between -25°C and -15°C (-13°F and 5°F).
  - Use a temperature log for frozen transport to record vaccine temperatures during transport and the hours remaining for transport.
  - After reaching the destination, store vaccine upright in the
    - Freezer between -25°C and -15°C (-13°F and 5°F) until the expiration date, if freezer capacity is available.
    - Refrigerator between 2°C and 8°C (36°F and 46°F), if a freezer is not available.
  - When vaccine transport has been completed for the day, remove any remaining vials from the portable freezer or transport container and immediately put them in the appropriate storage unit. Note: **Thawed vaccines must never be refrozen**.
- **Refrigerated:**
  If frozen temperature condition isn't available, Jynneos vaccine may be transported between 2°C and 8°C (36°F and 46°F) for **12 cumulative hours.** For example, vaccine transported for 2 hours today has 10 hours of transport time remaining.
  - Transport by using a portable refrigerator or qualified container and packout with a digital data logger (DDL) to maintain temperatures between 2°C and 8°C (36°F and 46°F).
  - Use a temperature log for refrigerated transport to record vaccine temperatures during transport and the hours remaining for transport.
  - After reaching the destination,
    - Unpunctured vials should be stored upright in the refrigerator between 2°C and 8°C (36°F and 46°F).
    - Punctured vials should be labeled with the calculated BUD and staff initials and stored upright in the refrigerator between 2°C and 8°C.
  - When vaccine transport has been completed for the day, remove any remaining vials from the portable refrigerator or transport container and immediately put them in the refrigerator.

Vaccine Preparation

Each vial contains one subcutaneous dose (0.5 mL) or up to five intradermal doses (0.1 mL per dose).

- Frozen vaccine must be thawed 10 minutes prior to use, at refrigerated or room temperature.
- With the vial upright, gently swirl the vaccine for at least 30 seconds.
- Examine the vaccine. It should be a milky, light yellow to pale white colored suspension. Do not use if the liquid contains particulate matter or is discolored.
- Determine the route of administration based on the licensed or EUA indication:
    - **Subcutaneous (subcut)** administration* involves injecting the vaccine into the fatty tissue, typically over the triceps, in persons ages 12 months and older, or in the anterolateral thigh for persons younger than age 12 months.
        - Use each single-dose vial to obtain one 0.5 mL dose for subcutaneous administration.
        - Use a 23–25 gauge, 5/8-inch needle to withdraw one 0.5 mL dose into a sterile syringe. Always use a new, sterile needle and a new, sterile syringe for each injection.
    - **Intradermal (ID)** administration* involves injecting the vaccine superficially between the epidermis and the hypodermis layers of the skin. For Jynneos, the typical injection site is the volar (inner) aspect of the forearm, but it may also be administered in the upper back below the scapula or at the deltoid.
        - Use each single-dose vial to obtain up to five 0.1 mL doses for intradermal administration by puncturing the vial stopper five times. The number of doses varies depending on the needle and syringe combination used.
        - Use a 26–27 gauge, 1/4-, 3/8-, or 1/2-inch needle with a short bevel to withdraw one 0.1 mL dose into a sterile 1 mL syringe. Always use a new, sterile needle and a new, sterile syringe for each injection.
        - Beyond-use time: Once first punctured and an intradermal dose is withdrawn, label the vial with the calculated BUD and staff initials and store it at 2°C to 8°C (36°F to 46°F) for up to 8 hours. Do not refreeze thawed vaccine.
        - Discard the vial when there is insufficient vaccine to obtain a complete 0.1 mL intradermal dose. Do not combine residual vaccine from multiple vials to obtain a dose.

*The FDA-approved standard regimen is a 0.5 mL subcutaneous dose for persons ages 18 years and older. Under the EUA, a 0.5 mL subcutaneous dose may be administered to persons under the age of 18 years, and a 0.1 mL intradermal dose may be administered to adults aged 18 years and older. From August 2022 to February 2023, the intradermal route was preferred to extend vaccine supply while maintaining immunogenicity. Because vaccine supply is adequate now, providers can preferentially administer Jynneos via the subcutaneous route.

ADDITIONAL RESOURCES

Older Adults Should Get High-Dose Flu Shot, Says CDC (aarp.org) - https://www.aarp.org/health/conditions-treatments/info-2022/older-adults-high-dose-flu-shot.html

A Flu Vaccine is More Important than Ever! (30 second) - YouTube - https://www.youtube.com/watch?v=xQUl-WYw3Ck

SAMPLE

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This policy and procedure is not intended to replace the informed judgment of individual physicians, nurses or other clinicians nor is it intended as a statement of prevailing community standards or minimum standards of practice. It is a suggested method and technique for achieving optimal health care, not a minimum standard below which residents necessarily would be placed at risk.