



Immunization Update

Washington State Immunization Summit 2023

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Disclosures

- JoEllen Wolicki is a federal government employee with no financial interest in or conflict with the manufacturer of any product named in this presentation.
- I will not discuss any off-label uses for vaccines.
- The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.
- The findings and conclusions in this presentation are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention or ATSDR.

Disclosures

- **The recommendations to be discussed are primarily those of the Advisory Committee on Immunization Practices (ACIP).**
 - Composed of 15 experts in clinical medicine and public health
 - Provides guidance on use of vaccines and other biologic products to DHHS, CDC, and the U.S. Public Health Service

Advisory Committee on Immunization Practices (ACIP)



2022-23 Seasonal Influenza Recommendations

COVID-19 Vaccination Recommendations

[ACIP Recommendations](#)

[Clinical Considerations for Use of COVID-19 Vaccines](#)

Next ACIP Meeting
February 22-24, 2023

ACIP meetings are virtual. No registration is required to watch the webcasts.


[Final Agenda](#)

[Presentation Slides](#)

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[Federal Register](#)

ACIP Meeting Information




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ACIP Committee Information



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ACIP Committee Members



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Next ACIP Meeting June 21–22, 2023

Thank You!



Advisory Committee on Immunization Practices 2023 Immunization Schedules

Immunization Schedules: Overview

- Published annually in February
 - Represents current, approved ACIP policy
 - Designed for implementation of ACIP policy
- Two separate schedules
 - Child and adolescent schedule (age birth through 18 years)
 - Adult schedule (age 19 years or older)

Recommended Adult Immunization Schedule for ages 19 years or older

**UNITED STATES
2023**

How to use the adult immunization schedule

- Determine recommended vaccinations by age (Table 1)
- Assess need for additional recommended vaccinations by medical condition or other indication (Table 2)
- Review vaccine types, dosing frequencies and intervals, and considerations for special situations (Notes)
- Review contraindications and precautions for vaccine types (Appendix)

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American College of Physicians (www.acponline.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwife.org), American Academy of Physician Associates (www.aapa.org), American Pharmacists Association (www.pharmacist.com), and Society for Healthcare Epidemiology of America (www.shea-online.org).

Vaccines in the Adult Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
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Report
* Suspected cases of reportable vaccine-preventable diseases or outbreaks to the local or state health department.

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

**UNITED STATES
2023**

Vaccines in the Child and Adolescent Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
COVID-19	1vCOV-mRNA	Comirnaty [®] /Pfizer-BioNTech COVID-19 Vaccine Spikevax [®] /Moderna COVID-19 Vaccine
	2vCOV-mRNA	Pfizer-BioNTech COVID-19 Vaccine, Bivalent Moderna COVID-19 Vaccine, Bivalent
	1vCOV-aPS	Novavax COVID-19 Vaccine
Dengue vaccine	DENACYD	Dengvaxia [®]
Diphtheria, tetanus, and acellular pertussis vaccine	DTaP	Daptacel [®] Infanrix [®]
Diphtheria, tetanus vaccine	DT	No trade name
<i>Haemophilus influenzae</i> type b vaccine	Hib (PRP-T)	ActHib [®] Hibeneo [®]
	Hib (PRP-OMP)	PedvaxHB [®]
Hepatitis A vaccine	HepA	Havrix [®] Vaqta [®]
Hepatitis B vaccine	HepB	Engerix-B [®] Recombivax HB [®]
Human papillomavirus vaccine	HPV	Gardasil 9 [®]
Influenza vaccine (inactivated)	IV4	Multiple
Influenza vaccine (live, attenuated)	LAIV4	FluMist [®] Quadrivalent
Measles, mumps, and rubella vaccine	MMR	M-M-R II [®] Priorix [®]
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D	Menactra [®]
	MenACWY-CRM	Menveo [®]
	MenACWY-TT	MenQuadfi [®]
	MenB-4C	Beseneo [®]
	MenB-FHbp	Trumenb [®]
Meningococcal serogroup B vaccine	MenB-4Fhp	Trumenb [®]
Pneumococcal conjugate vaccine	PCV13	Pneumnar 13 [®]
	PCV15	Vaxneuvac [™]
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23 [®]
Poliovirus vaccine (inactivated)	IPV	IPOL [®]
Rotavirus vaccine	RV1	Rotarix [®]
	RV5	Rotateq [®]
Tetanus, diphtheria, and acellular pertussis vaccine	Tdap	Adacel [®] Boostrix [®]
Tetanus and diphtheria vaccine	Td	Tenivac [®] Tdva [™]
Varicella vaccine	VAR	Varivax [®]

How to use the child and adolescent immunization schedule

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

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American Academy of Pediatrics (www.aap.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwife.org), American Academy of Physician Associates (www.aapa.org), and National Association of Pediatric Nurse Practitioners (www.napn.org).

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/schedules/hcp/schedule-app.html

Helpful Information
* Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
* General Best Practice Guidelines for Immunization (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
* Vaccine information statements: www.cdc.gov/vaccines/hcp/vis/index.html
* Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak response): www.cdc.gov/vaccines/pubs/surv-manual
* ACIP Shared Clinical Decision-Making Recommendations: www.cdc.gov/vaccines/acip/acip-scdm-faqs.html

**U.S. Department of Health and Human Services
Centers for Disease Control and Prevention**

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 available at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html and ACIP's Recommendations for the Prevention and Control of 2022-23 Seasonal Influenza with Vaccines available at www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm

For COVID-19 vaccine contraindications and precautions see www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#contraindications

Vaccine	Contraindicated or Not Recommended ¹	Precautions ²
Influenza, egg-based, inactivated injectable (IIV4)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, cclIV, RIV, or LAIV of any valency) Severe allergic reaction (e.g., anaphylaxis) to any vaccine component³ (excluding egg) 	<ul style="list-style-type: none"> 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 [(cclIV4), Flucelvax® Quadrivalent]	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) to any cclIV of any valency, or to any component³ of cclIV4 	<ul style="list-style-type: none"> 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 cclIV4, 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 [(RIV4), Fluzone® Quadrivalent]	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component³ of RIV4 	<ul style="list-style-type: none"> 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, cclIV, or LAIV of any valency. If using RIV4, 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 [LAIV4, Flumist® Quadrivalent]	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, cclIV, RIV, or LAIV of any valency) Severe allergic reaction (e.g., anaphylaxis) to any vaccine component³ (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. 	<ul style="list-style-type: none"> Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine Asthma in persons aged 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. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.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/acip-recs/general-recs/contraindications.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.

CDC Interim COVID-19 Immunization Schedule for Persons 6 Months of Age and Older

COVID-19 Vaccine

Interim COVID-19 Immunization Schedule for Persons 6 Months of Age and Older



Table 1b. For Most People (those who are not moderately to severely immunocompromised)

Age	Vaccination History
6 months through 4 years ^{1§}	Unvaccinated: 0 doses
	1 dose of bivalent vaccine
	2 doses of bivalent vaccine
	At least 3 doses of bivalent vaccine
	Previously vaccinated with monovalent mRNA COVID-19 vaccine
5 years and older [†]	1 dose of monovalent vaccine
	2 doses of monovalent vaccine
	At least 1 dose of monovalent vaccine and 1 dose of bivalent vaccine
5 years and older [†]	Unvaccinated: 0 doses
	1 dose or more doses of monovalent vaccine [‡]
	At least 1 dose of bivalent vaccine

* Refer to CDC's [Interim Clinical Considerations](#) for specific guidance.
 † Persons with a recent SARS-CoV-2 infection may consider delaying.
 ‡ CDC recommends bivalent vaccine doses from the same manufacturer more than 1 dose is recommended. In the following exceptions, vaccine from the same manufacturer be used and a VAERS report is required:
 • Same vaccine not available.
 • Previous dose unknown.
 • Person would otherwise not complete the vaccination series.
 • Person starts but unable to complete a vaccination series.

COVID-19 Vaccine

Interim COVID-19 Immunization Schedule for Persons 6 Months of Age and Older



Table 1c. For Most People (those who are not moderately to severely immunocompromised)

Age	Vaccination History
12 years and older	Unvaccinated: 0 doses
	1 or more doses of monovalent Novavax vaccine
12 years and older	At least 1 dose of bivalent vaccine

* Novavax COVID-19 vaccine remains authorized to provide a 2-dose 0.5 µg of Matrix-M™ adjuvant vaccine from a vial with a royal blue series using any COVID-19 vaccine, have not received any previous vaccine and would otherwise not receive a dose. This dose is administered with a recent SARS-CoV-2 infection may consider delaying.
 † Adults 65 years of age and older. May receive 1 additional bivalent vaccine dose at least 4 months after the first dose of a bivalent mRNA vaccine.

COVID-19 Vaccine

Interim COVID-19 Immunization Schedule for Persons 6 Months of Age and Older



The following tables provide COVID-19 vaccination schedules based on age, health status, and product. For detailed guidance see [Interim Clinical Considerations for Use of COVID-19 Vaccines](#) | CDC.

Table 1a. For Most People (those who are NOT moderately to severely immunocompromised)

Age	Vaccination History	Bivalent Vaccine Schedule ¹	Administer
6 months through 4 years ^{1§}	Unvaccinated: 0 doses	2 doses. Administer: • Dose 1 now. • Dose 2 at least 4–8 weeks ⁴ after Dose 1	0.25 mL/25 µg from the vial with a blue cap and gray label border
	1 dose of bivalent vaccine	1 dose. Administer: • Dose 2 at least 4–8 weeks ⁴ after Dose 1	
	At least 2 doses of bivalent vaccine	No dose	No dose
	Previously vaccinated with monovalent mRNA COVID-19 vaccine		
	1 dose of monovalent vaccine	1 dose. Administer: • Dose 2 at least 4–8 weeks ⁴ after Dose 1	0.25 mL/25 µg from the vial with a blue cap and gray label border.
6 months through 5 years ^{1§}	2 doses of monovalent vaccine	1 dose. Administer: • Dose 3 at least 8 weeks (2 months) after Dose 2	0.2 mL/10 µg from the vial with a dark pink cap and yellow label border
	At least 1 dose of monovalent vaccine and 1 dose of bivalent vaccine	No dose	No dose
	Unvaccinated: 0 doses	1 dose now ^{**}	6 through 11 years: 0.25 mL/25 µg from the vial with a blue cap and gray label border 12 years and older: 0.50 mL/50 µg from the vial with a blue cap and gray label border
6 years and older	1 or more doses of monovalent vaccine	1 dose. Administer: • Vaccine at least 8 weeks (2 months) after the previous dose [†]	
	At least 1 dose of bivalent vaccine	No dose ^{**}	No dose ^{**}

* Refer to CDC's [Interim Clinical Considerations](#) for specific guidance on interchangeability of vaccine products for all ages.
 † Persons with a recent SARS-CoV-2 infection may consider delaying vaccination by 3 months from symptom onset or positive test (if infection was asymptomatic).
 ‡ CDC recommends bivalent vaccine doses from the same manufacturer for children 6 months through 5 years of age who are unvaccinated (no previous doses of COVID-19 vaccine) if more than 1 dose is recommended in the following exceptional situations, a different age-appropriate COVID-19 vaccine may be administered when FDA authorization requires that a vaccine from the same manufacturer be used and a VAERS report is not required:
 • Same vaccine not available.
 • Previous dose unknown.
 • Person would otherwise not complete the vaccination series.
 • Person starts but unable to complete a vaccination series with the same COVID-19 vaccine due to a contraindication.
 § Children ages 6 months through 4 years who received bivalent vaccines from different manufacturers for the first 2 doses of an mRNA COVID-19 vaccine series should follow a 3-dose schedule. A third dose of either mRNA vaccine (Moderna or Pfizer-BioNTech) should be administered at least 1 week after the second dose.
 ¶ An 8-week interval between the first and second doses of COVID-19 vaccines might be optimal for some people ages 6 months–44 years, especially for males ages 12–39 years, as it may reduce the small risk of myocarditis and pericarditis associated with these vaccines.
 ** Adults 65 years of age and older. May receive 1 additional bivalent mRNA vaccine dose at least 4 months after the first dose of a bivalent mRNA vaccine.

COVID-19 Vaccine

Interim COVID-19 Immunization Schedule for Persons 6 Months of Age and Older



COVID-19 Vaccine

Interim COVID-19 Immunization Schedule for Persons 6 Months of Age and Older



Table 2a. People Who are Moderately to Severely Immunocompromised

Age	Vaccination History	Bivalent Vaccine Schedule	Administer
6 months through 4 years ^{1§}	Unvaccinated: 0 doses	3 doses. Administer: • Dose 1 now. • Dose 2 at least 4 weeks after Dose 1. • Dose 3 at least 4 weeks after Dose 2. ¹	6 months through 11 years: 0.25 mL/25 µg from the vial with a blue cap and gray label border. 12 years and older: 0.50 mL/50 µg from the vial with a blue cap and gray label border.
	1 dose of bivalent vaccine only	2 doses. Administer: • Dose 2 at least 4 weeks after Dose 1. • Dose 3 at least 4 weeks after Dose 2. ¹	
	2 doses of bivalent vaccine	1 dose. Administer: • Dose 3 at least 4 weeks after Dose 2. ¹	
	At least 2 doses of bivalent vaccine	No dose	No dose
	Previously vaccinated with monovalent mRNA COVID-19 vaccine		
6 months and older ¹	3 doses of bivalent vaccine	See footnote ²	6 months through 5 years: 0.2 mL/10 µg from the vial with a dark pink cap and yellow label border. 6 through 11 years: 0.25 mL/25 µg from the vial with a blue cap and gray label border. 12 years and older: 0.50 mL/50 µg from the vial with a blue cap and gray label border.
	Previously vaccinated with monovalent mRNA COVID-19 vaccine		
	1 dose of monovalent vaccine	2 doses. Administer: • Dose 2 at least 4 weeks after Dose 1. • Dose 3 at least 4 weeks after Dose 2. ¹	6 months through 11 years: 0.25 mL/25 µg from the vial with a blue cap and gray label border. 12 years and older: 0.50 mL/50 µg from the vial with a blue cap and gray label border.
	2 doses of monovalent vaccine	1 dose. Administer: • Dose 3 at least 4 weeks after Dose 2. ¹	
	3 doses of monovalent vaccine	1 dose. Administer: • Dose 4 at least 8 weeks after Dose 3. ¹	6 months through 5 years: 0.2 mL/10 µg from the vial with a dark pink cap and yellow label border. 6 through 11 years: 0.25 mL/25 µg from the vial with a blue cap and gray label border. 12 years and older: 0.50 mL/50 µg from the vial with a blue cap and gray label border.
3 doses of monovalent vaccine and 1 dose of bivalent vaccine	See footnote ²		

* Refer to CDC's [Interim Clinical Considerations](#) for specific guidance on interchangeability of vaccine products for all ages.
 † CDC recommends bivalent vaccine doses from the same manufacturer for children 6 months through 5 years of age who are unvaccinated (no previous doses of COVID-19 vaccine) if more than 1 dose is recommended in the following exceptional situations, a different age-appropriate COVID-19 vaccine may be administered when FDA authorization requires that a vaccine from the same manufacturer be used and a VAERS report is not required:
 • Same vaccine not available.
 • Previous dose unknown.
 • Person would otherwise not complete the vaccination series.
 • Person starts but unable to complete a vaccination series with the same COVID-19 vaccine due to a contraindication.
 ‡ People who are moderately to severely immunocompromised should receive a third dose of either mRNA vaccine (Moderna or Pfizer-BioNTech) should be administered at least 1 week after the second dose.
 § An 8-week interval between the first and second doses of COVID-19 vaccines might be optimal for some people ages 6 months–44 years, especially for males ages 12–39 years, as it may reduce the small risk of myocarditis and pericarditis associated with these vaccines.
 ** Adults 65 years of age and older. May receive 1 additional bivalent mRNA vaccine dose at least 4 months after the first dose of a bivalent mRNA vaccine.

Tables 1 A – C For Most People

Tables 2 A – C For Persons with Moderate or Severe Immunocompromise

Return of Vaccine-Preventable Diseases

Morbidity and Mortality Weekly Report

Wastewater Testing and Detection of Poliovirus Type 2 Genetically Linked to Virus Isolated from a Paralytic Polio Case — New York, March 9–October 11, 2022

A. Blythe Ryerson, PhD^{1,*}; Daniel Lang, MS^{2,*}; Mohammed A. Alazawi, PhD²; Milagros Neyra, MPH³; Dustin T. Hill, PhD⁵; Kirsten St. George, PhD^{2,4}; Meghan Fuschino, MS²; Emily Lutterloh, MD²; Bryon Backenson, MS²; Samuel Rulli⁵; Patricia Schnabel Ruppert, DO⁵; Jacqueline Lawler, MPH⁶; Nancy McGraw, MPH⁷; Andrew Knecht, DO⁸; Irina Gelman, DPM⁸; Jane R. Zucker, MD^{1,9}; Enoma Omoregie, PhD⁹; Sarah Kidd, MD¹; David E. Sugerman, MD¹; Jaume Jorba, PhD¹; Nancy Gerloff, PhD¹; Terry Fei Fan Ng, PhD¹; Adriana Lopez, MHS¹; Nina B. Masters, PhD^{1,10}; Jessica Leung, MPH¹; Cara C. Burns, PhD¹; Janell Routh, MD¹; Stephanie R. Bialek, MD¹; M. Steven Oberste, PhD^{1,7}; Eli S. Rosenberg, PhD^{2,11,7}; 2022 U.S. Poliovirus Response Team

‘Silent’ spread of polio in New York drives CDC to consider additional vaccinations for some people



Measles Exposure at a Large Gathering in Kentucky, February 2023 and Global Measles Outbreaks

[Print](#)



Distributed via the CDC Health Alert Network
March 3, 2023, 11:15 AM ET
CDCHAN-00488

Summary

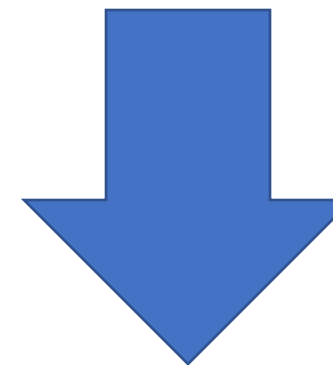
The Centers for Disease Control and Prevention (CDC) is issuing this Health Alert Network (HAN) Health Advisory to notify clinicians and public health officials about a confirmed measles case at a large gathering. On February 24, 2023, the Kentucky Department for Public Health (KD^{PH}) identified a confirmed case of measles in an unvaccinated individual with a history of recent international travel.

Decline in Vaccination Coverage Among Kindergarteners During the Pandemic

Estimated vaccination coverage among kindergartners by vaccine— United States, 2019-20, 2020-21, and 2021-22 school years

Kindergarten Coverage	2019-20 (pre-pandemic)	2020-21 (pandemic)	2021-22 (pandemic)
MMR	95.2%	93.9%	93.5%
DTaP	94.9%	93.6%	93.1%
Polio	95.0%	93.9%	93.5%
Varicella (UTD)	94.8%	93.6%	92.6%

2% drop in kindergarten vaccination coverage since the start of the pandemic



275,000 children, who entered kindergarten during the pandemic, are susceptible to vaccine preventable disease

Ensure Everyone is Caught Up! Evidence-Based Strategies



- Use a reminder/recall system to let patients/parents know vaccines are due.
- Give a strong recommendation when talking about vaccines.
- Use provider prompts (computer or handwritten) to remind staff when vaccines are due.
- Assess for needed vaccines at every clinical visit.
- Use standing orders.
- Consider “vaccine-only” visits.

Influenza Update

A close-up photograph of a doctor in a white lab coat sitting at a desk. The doctor is holding a silver pen and writing on a document on a blue clipboard. To the right, a silver laptop is open, and the doctor's hand is visible typing on the keyboard. The background is softly blurred, showing a window with a plant. The text "Time to Prepare for Next Flu Season!" is overlaid in purple on the right side of the image.

Time to Prepare for
Next Flu Season!

2022–2023 ACIP Recommendations: Influenza

- Annual influenza vaccination is recommended for persons 6 months of age and older without contraindications or precautions
- Note: Influenza vaccine products vary with different age-indications contraindications, and recommendations.



2022–2023 ACIP Recommendations: Influenza



Ages 6 months–64 years

No preferential recommendation.

Administer any licensed,
recommended, and
age-appropriate vaccine.



Ages 65 years and older

ACIP recommends any high dose or
adjuvanted influenza vaccine.

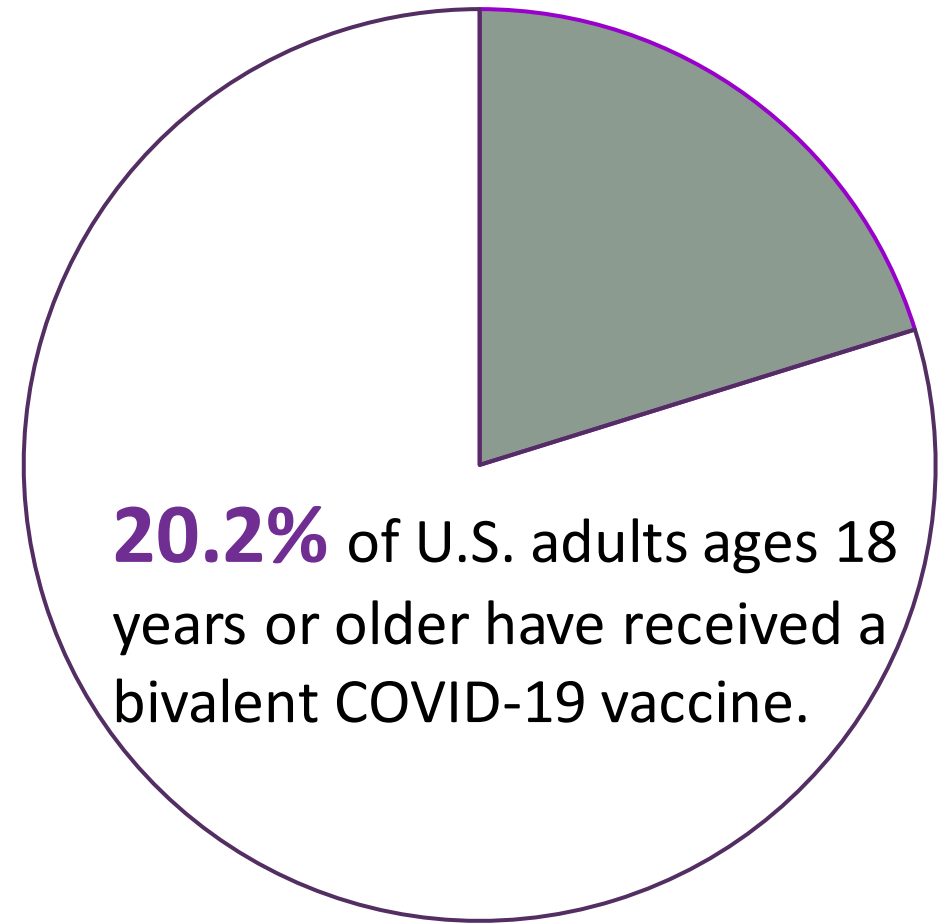
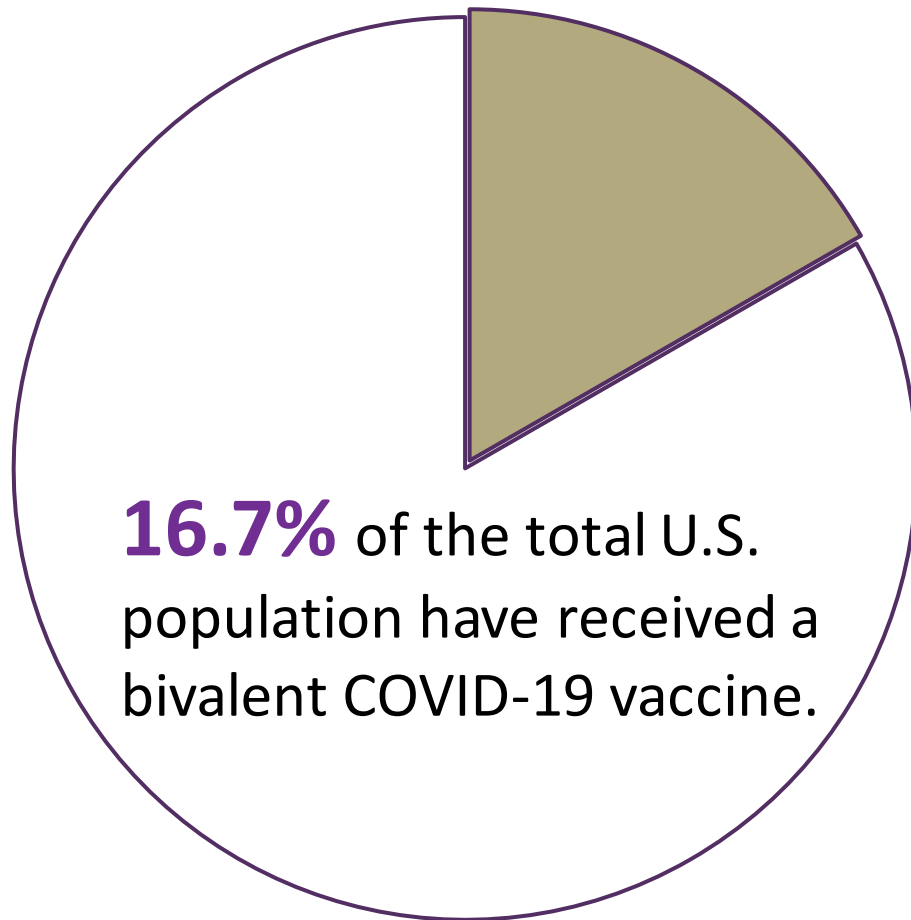
65 Years Old and Older: Higher Dose and Adjuvanted Vaccines

- ACIP recommends preferential use of higher dose or adjuvanted influenza vaccines for persons 65 years old or older
- Includes these vaccines:
 - Higher dose: High-dose influenza vaccine (Fluzone High-Dose), Recombinant Influenza Vaccine (Flublok)
 - Adjuvanted: Adjuvanted influenza vaccine (Fluad)
 - No preference between these three
- If none of the three are available, vaccinate with another age-appropriate influenza vaccine

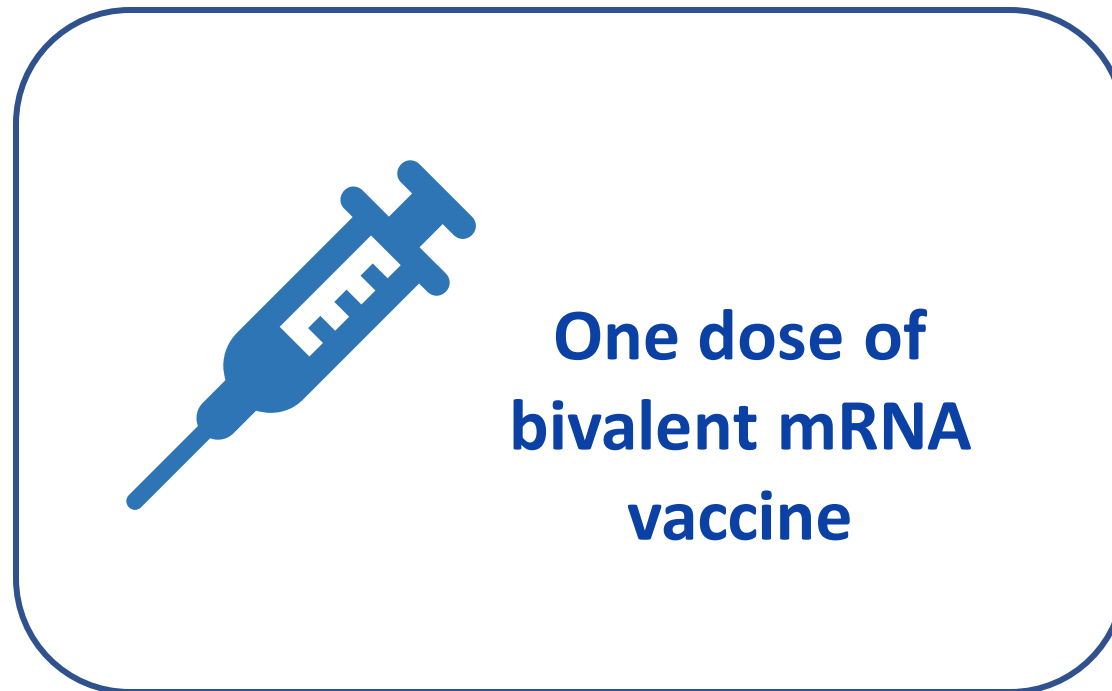
BIVALENT COVID-19 Vaccination

Persons Who Are Not Immunocompromised

Bivalent COVID-19 Vaccination Coverage Rates Are Low

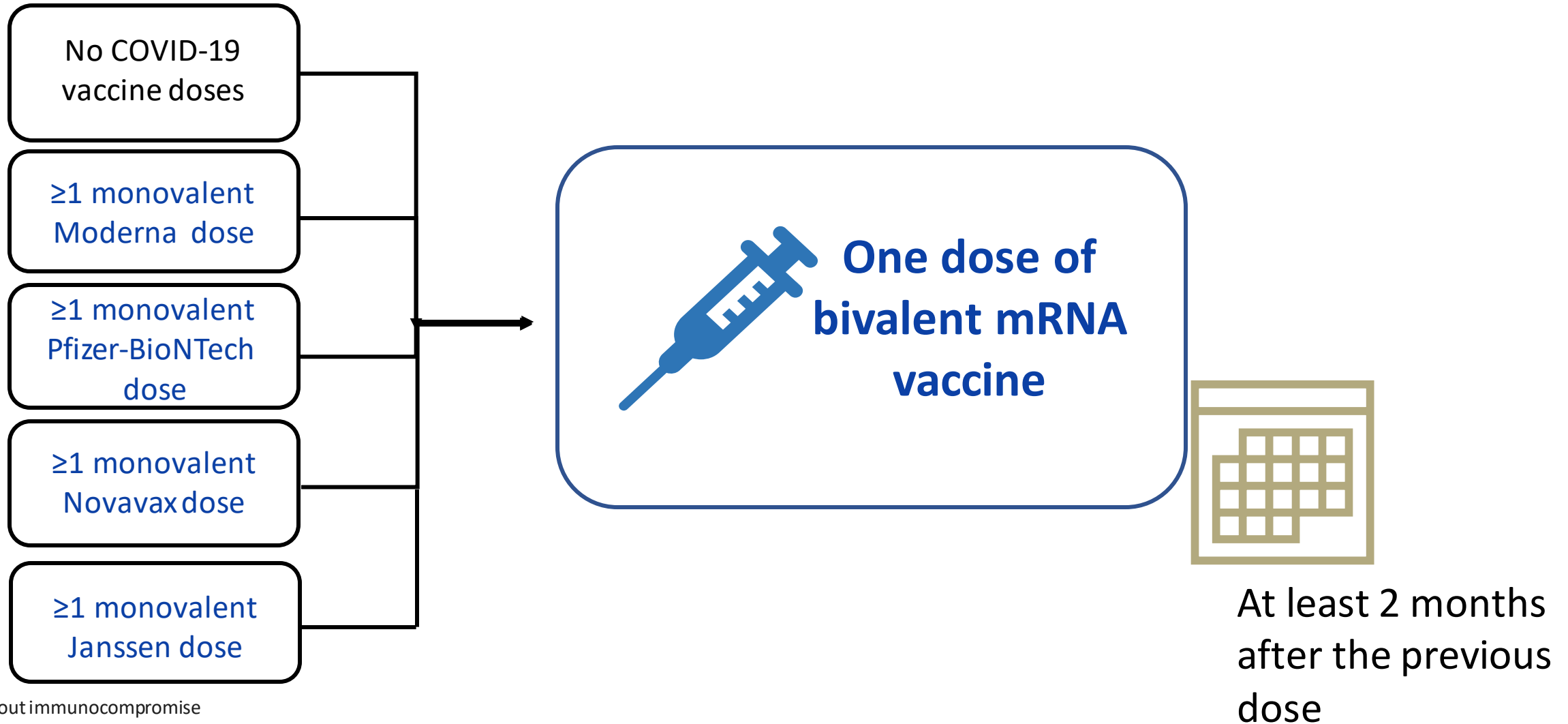


New Recommendations for Persons* 6 Years of Age or Older Who **HAVE NOT** Received Bivalent Vaccine



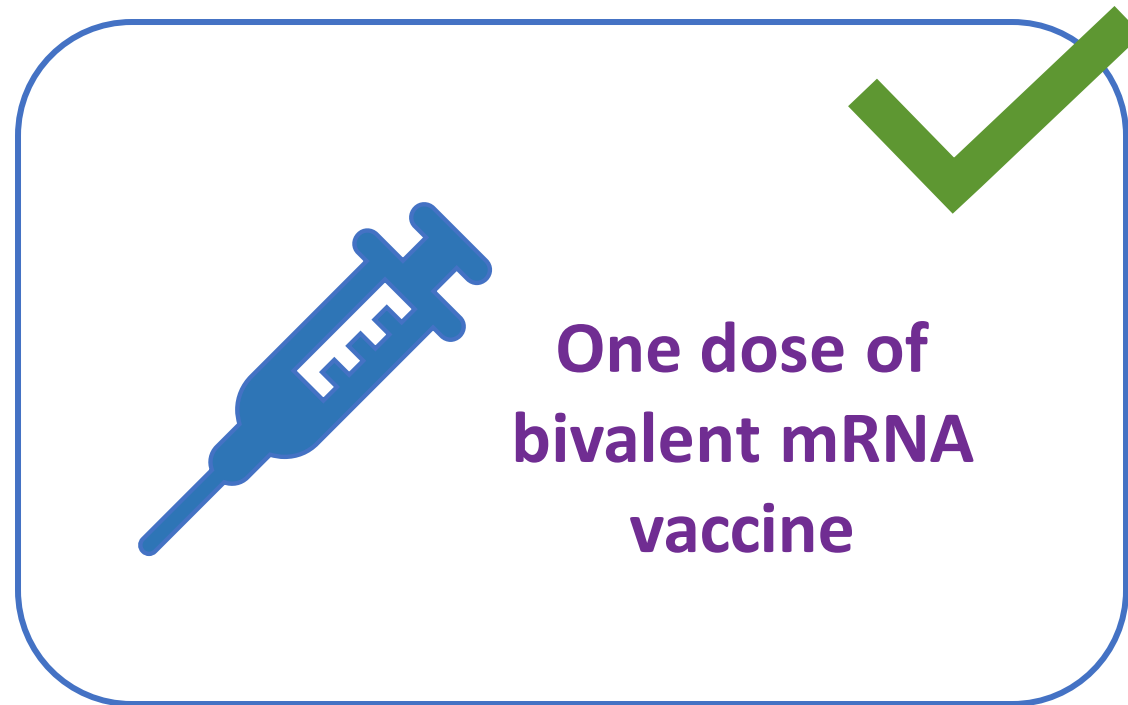
*Without immunocompromise

New Recommendations for Persons* 6 Years of Age or Older Who HAVE NOT Received Bivalent Vaccine



*Without immunocompromise

New Recommendations for Persons* 6 Years of Age and Older Who HAVE Received Bivalent Vaccine



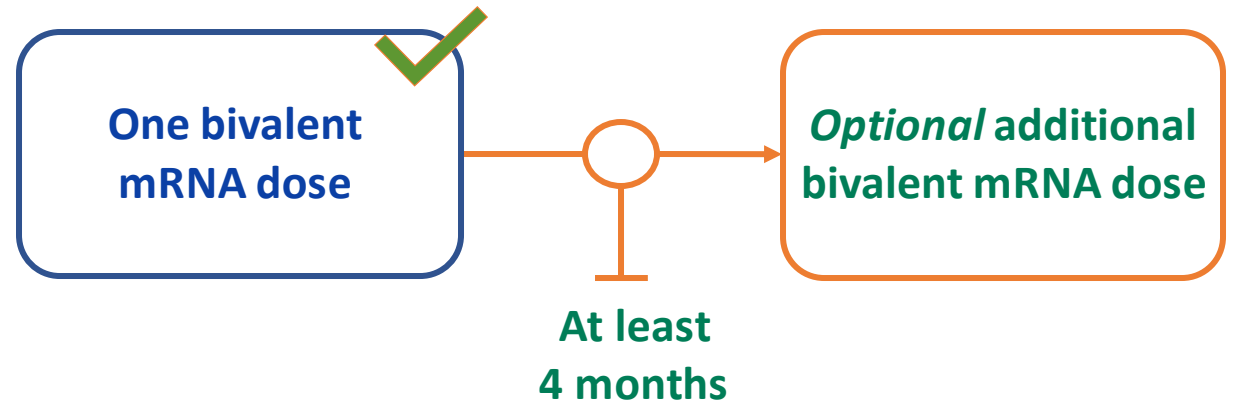
One dose of
bivalent mRNA
vaccine

Vaccination is complete.
No additional doses are
indicated at this time.

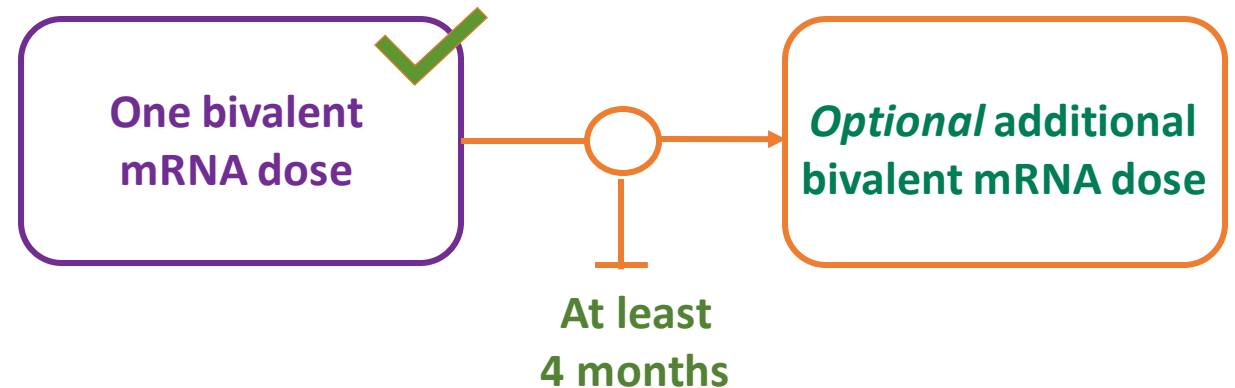
*Without immunocompromise

New Recommendations for Those at Higher Risk of Severe Disease: People 65 Years of Age or Older

People 65 years and older who have NOT received a bivalent mRNA dose



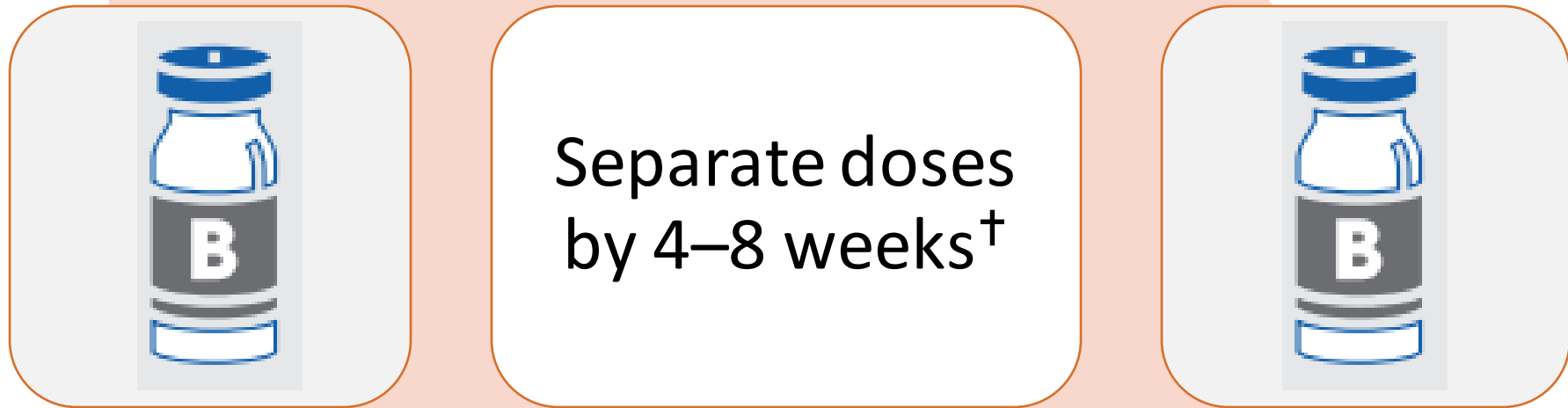
People 65 years and older who have already received a bivalent mRNA dose



Children 6 Months Through 5 Years of Age

- Schedule varies based on vaccination status
 1. Unvaccinated: No previous doses of any COVID-19 vaccine
 2. Vaccinated: Children whose immunization history includes dose(s) of monovalent vaccine
- Vaccine products have different age indications
 - Pfizer-BioNTech: 6 months through **4** years of age
 - Moderna: 6 months through **5** years of age
 - Different presentations based on recipient's vaccination history and health status

Unvaccinated Children* 6 Months Through 5 Years of Age: Moderna COVID-19 Vaccine



**Use the blue capped vial with the gray labeled
border**

*Not immunocompromised.

[†]An 8-week interval between doses 1 and 2 may be optimal for some people ages 6 months–64 years, especially for males ages 12–39 years, as it may reduce the small risk of myocarditis and pericarditis associated with these vaccines

Unvaccinated Children* 6 Months Through 4 Years of Age: Pfizer-BioNTech COVID-19 Vaccine



*Not immunocompromised.

[†]An 8-week interval between doses 1 and 2 may be optimal for some people ages 6 months–64 years, especially for males ages 12–39 years, as it may reduce the small risk of myocarditis and pericarditis associated with these vaccines

Children* 6 Months Through 4 Years of Age: Previously Vaccinated with Moderna Monovalent Vaccine

Vaccination	Administer	Schedule	Vial
1 dose of monovalent Moderna vaccine	Moderna	1 dose 4–8 weeks after the previous dose	Blue cap
2 doses of monovalent Moderna vaccine	Moderna	1 dose 8 weeks after the previous dose	Pink cap
1 dose of monovalent AND bivalent Moderna Vaccine	No dose! Previously received bivalent vaccine		

*without immunocompromise

[Clinical Guidance for COVID-19 Vaccination | CDC](#)

Children* 6 Months Through 4 Years of Age: Previously Vaccinated with Pfizer-BioNTech Monovalent Vaccine

Vaccination	Administer	Schedule	Vial
1 dose of monovalent Pfizer-BioNTech vaccine	Pfizer-BioNTech	2 doses. Dose 2: 3–8 weeks after monovalent dose 1. Separate Dose 2 and Dose 3 by at least 8 weeks.	Maroon cap
2 doses of monovalent Pfizer-BioNTech	Pfizer-BioNTech	1 dose at least 8 weeks after monovalent Dose 2.	Maroon cap
3 doses of monovalent Pfizer-BioNTech	Pfizer-BioNTech	1 dose at least 8 weeks after monovalent Dose 3.	Maroon cap
2 doses monovalent Pfizer-BioNTech and 1 dose bivalent Pfizer-BioNTech	No dose! Previously received bivalent vaccine		

*without immunocompromise

[Clinical Guidance for COVID-19 Vaccination | CDC](#)

Children* 5 Years of Age: Previously Vaccinated with Monovalent Vaccine

Vaccination	Administer	Schedule	Vial
Unvaccinated	Moderna OR Pfizer-BioNTech	2 doses separated by 4–8 weeks	Blue cap
		1 dose	Orange cap
1 dose of monovalent Moderna vaccine	Moderna OR Pfizer-BioNTech	1 dose 4–8 weeks after the previous dose	Blue cap
		1 dose at least 8 weeks after the previous dose	Orange cap
2 doses of monovalent Moderna vaccine	Moderna OR Pfizer-BioNTech	1 dose 8 weeks after the previous dose	Pink cap
			Orange cap
1 or more doses of monovalent Pfizer-BioNTech	Pfizer-BioNTech	1 dose at least 8 weeks after the previous dose	Orange cap
At least 1 dose bivalent of Pfizer-BioNTech (regardless of monovalent vaccine history)	No dose! Previously received bivalent vaccine		

*without immunocompromise

[Clinical Guidance for COVID-19 Vaccination | CDC](#)

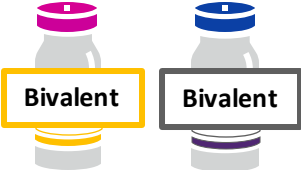
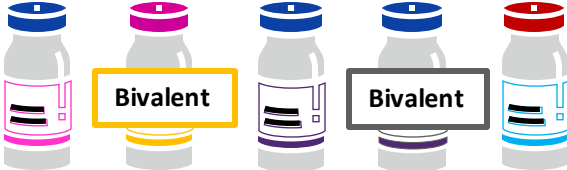
Fewer COVID-19 Vaccine Products in Your Storage Unit

Manufacturer

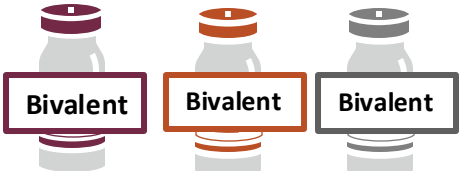
Products Previously in Use

Products Now in Use

Moderna



Pfizer-BioNTech



Novavax



Janssen



All remaining Janssen vaccine doses expire by May 6th 2023

Clinical Considerations for Moderna Bivalent Vaccine Vial with the Blue Cap and Gray-Bordered Label

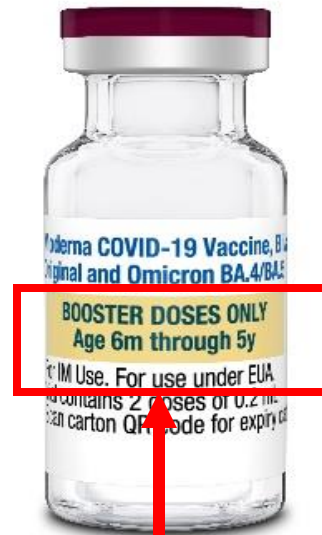


**“Booster Doses Only”
no longer applies**

- **Ages: 6 months and older**
- **Dosage: Varies by age**
 - 6 months through 11 years: 0.25 mL/25 µg
 - 12 years and older: 0.5 mL/50 µg
- **Use for persons never vaccinated with bivalent vaccine, including:**
 - 6 months and older: Unvaccinated
 - 6 months through 5 years previously vaccinated with only 1 dose of monovalent vaccine
 - 6 years and older vaccinated with 1 or more doses of monovalent vaccine

Clinical Considerations for Moderna Bivalent Vaccine Vial with the Dark Pink Cap and Yellow Box Label

- Ages: 6 months through 5 years
- Dosage: 0.2 mL/10µg
- Route: Intramuscular injection
- Multidose vial = 2 doses
- Use for children who were previously vaccinated with 2 doses of monovalent vaccine



**“Booster Doses Only”
does not apply**

Clinical Considerations for Pfizer-BioNTech Bivalent Vaccine



- Ages 6 months through 4 years
- 0.2 mL/3 μ g
- Mix with diluent
- Unvaccinated and previously vaccinated persons



- Ages 5 through 11 years
- 0.2 mL/10 μ g
- Mix with diluent
- Unvaccinated and previously vaccinated persons



- Ages 12 years and older
- 0.3 mL/30 μ g
- Do NOT mix with diluent
- Unvaccinated and previously vaccinated persons



CDC COVID-19 Vaccine Clinical Resources

COVID-19 Vaccination

Product Info by U.S. Vaccine +

Interim Clinical Considerations -

Use of COVID-19 Vaccines in the U.S.

Use of COVID-19 Vaccines in the U.S.: Appendices

FAQs for the Interim Clinical Considerations

Archived COVID-19 Vaccination Schedules

Myocarditis and Pericarditis Considerations

Clinical Care +

Provider Requirements and Support +

Training and Education

Vaccine Recipient Education +

Health Departments +

Planning & Partnerships +

Vaccine Effectiveness Research

COVID-19 Vaccine Data Systems +

Use of COVID-19 Vaccines in the United States

[Print](#)

Interim Clinical Considerations

Summary of recent changes (last updated 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).

Reference Materials

- [Summary Document for Interim Clinical Considerations](#) (Updated 12/12/2022)
- [Interim COVID-19 Immunization Schedule](#) (Updated 12/12/2022)
- [COVID-19 Vaccination Schedule Infographic](#)
- [COVID-19 Vaccination Schedule Infographic \(Immunocompromised\)](#)
- [Special Situations for COVID-19 Vaccination of Children and Adolescents: Age Transitions and Interchangeability](#) (Updated 12/09/2022)
- [FAQs for the Interim Clinical Considerations](#)

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COVID-19 Vaccines, Recommendations, and Schedules

[Overview of COVID-19 vaccination](#)

[Guidance for people who are not immunocompromised](#)

[Guidance for people who are immunocompromised](#)

[Interim Clinical Considerations for Use of COVID-19 Vaccines | CDC](#)
[U.S. COVID-19 Vaccine Product Information | CDC](#)

U.S. COVID-19 Vaccine Product Information

[Español](#) | [Print](#)

Find a suite of information and materials that are needed for each specific COVID-19 vaccine that cover administration, storage and handling, safety, and reporting.

Janssen/J&J

Pfizer-
BioNTech

Moderna

Novavax



Interim COVID-19 Immunization Schedule for Ages 6 months and older

Find guidance for COVID-19 vaccination schedules based on age and medical condition.



Prevaccination Screening Checklist

[COVID-19 Prevaccination Guidelines](#)

Download a prevaccination checklist in multiple languages.

[Select Language](#)

Requirements, Trainings, and Resources

[Identification, Disposal, and Reporting of COVID-19 Vaccine Wastage](#)

[Secretarial Directive on Eligibility to Receive Particular COVID-19 Vaccine Boosters](#) (September 25, 2021)

[Vaccine Storage and Handling Toolkit](#)

[Secretarial Directive on Eligibility to Receive Particular COVID-19 Vaccine Boosters](#) (October 22, 2021)

[Training and Education](#)

Pfizer-BioNTech COVID-19 Vaccine

At-A-Glance



Guidance below summarizes basic storage, preparation, scheduling, and administration for ALL Pfizer-BioNTech COVID-19 Vaccine products.

<p>Ages: 6 months through 4 years (Maroon capped vial and bordered label)</p> <p>BIVALENT</p>	<p>Ages: 5 through 11 years (Orange capped vial and bordered label)</p> <p>BIVALENT</p>	<p>Ages: 12 and older (Gray capped vial and bordered label)</p> <p>BIVALENT</p>
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Storage and Handling Basics

Find additional guidance on storing the vaccine properly at:

- [Vaccine Storage and Handling Toolkit-Updated with COVID-19 Vaccine Storage and Handling Information](#)
- [Pfizer-BioNTech COVID-19 Vaccines | FDA](#)
- [Pfizer-BioNTech COVID-19 Vaccine | cdcvaccine.com](#)

Vial cap color	BIVALENT Maroon Cap	BIVALENT Orange Cap	BIVALENT Gray Cap
Ages	6 months through 4 years	5 through 11 years	12 years and older
Supplied in:	MDV: 10 doses per vial Requires diluent	MDV: 10 doses per vial Requires diluent	MDV: 6 doses per vial SDV: 1 dose No diluent
Storage Temperature: Before Puncture	<p>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</p> <p>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 if the expiration date or beyond-use date has passed.</p>		
Thawing Frozen Vaccine	<p>Between: 2°C and 8°C (36°F and 46°F) OR Up to 25°C (77°F)</p> <p>Amount of time needed to thaw vaccine varies based on temperature and number of vials.</p>		
Storage Temperature: After 1st Puncture	<p>Between: 2°C and 25°C (36°F and 77°F) for up to 12 hours. Discard vial and any unused vaccine after 12 hours.</p>		

* Vaccine expires 18 months after the manufacture date on the vial. Use Pfizer-BioNTech expiration date tool at [https://www.cdc.gov/vaccine/expiration-date-tool/](#)

Moderna COVID-19 Vaccine

At-A-Glance



Guidance below summarizes basic storage, preparation, scheduling, administration, and dosage for ALL Moderna COVID-19 Vaccine products.

<p>Ages: 6 months through 5 years BIVALENT (pink capped vial with yellow-bordered label)</p>	<p>Ages: 6 months and older BIVALENT (blue capped vial with gray-bordered label)</p>
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Storage and Handling Basics

Find additional guidance on storing vaccine properly at:

- [Vaccine Storage and Handling Toolkit — Updated with COVID-19 Vaccine Storage and Handling Information](#)
- [Moderna COVID-19 Vaccines | FDA](#)
- [Moderna COVID-19 Vaccines | FDA](#)

Vial cap color	BIVALENT Pink capped vials with yellow-bordered label	BIVALENT Dark blue capped vial with gray-bordered label
Supplied in multidose vial	2 doses per vial Do not confuse these with single-dose vials. Discard vial after 2 doses have been removed.	6 months and older: 5 doses per vial
Storage Temperature: Before Puncture	<p>Between: -50°C and -15°C (-58°F and 5°F) until the expiration date 2°C and 8°C (36°F and 46°F) for up to 30 days 8°C and 25°C (46° and 77°F) for a total of 24 hours. Discard vial and unused vaccine after 24 hours.</p> <p>NOTE: The beyond-use date (30 days) replaces the manufacturer's expiration date but NEVER extends it. Always use the earliest date. Do NOT use vaccine if the expiration date or beyond-use date has passed.</p>	
Thawing Frozen Vaccine	<p>Between: 2°C and 8°C (36°F and 46°F) OR 15°C and 25°C (46°F and 77°F)</p> <p>Amount of time needed to thaw vaccine varies based on temperature and number of vials.</p>	
Storage Temperature: After 1st Puncture	<p>Between: 2°C and 25°C (36°F and 77°F) for up to:</p> <ul style="list-style-type: none"> 8 hours - bivalent vaccine for ages 6 months through 5 years (pink capped with yellow bordered label) 12 hours - all other Moderna COVID-19 vaccine products <p>Discard vial and any unused vaccine after these time frames.</p>	

Other Vaccine Updates

New Vaccine Products/Indications

Vaccine	Product	What's New
MMR	Priorix (GSK)	Can be used for any dose in MMR series; mixed product series is acceptable
MenACWY	Menveo (GSK)	Single-dose vial Does NOT require reconstitution NOTE: Ages 10 through 55 years differ
PCV20	Prevnar20 (Pfizer)	FDA approved for children 6 weeks of age and older
RV5	Rotarix (GSK)	Does NOT require reconstitution

New Route: MMR II, Varivax, and ProQuad



Subcutaneous
injection

OR



Intramuscular
injection

Vaccination Resources for Healthcare Providers



Knowledgeable Staff Is Critical

CDC Vaccination Resources for Healthcare Providers

- Schedules App
- Pneumococcal Vaccination App
- Pneumococcal Vaccine Timing for Adults
- Vaccine Catch-up guidance



Education and Training Home

You Call The Shots

Current Issues in Immunization Webinar (CIIW)

Immunization Courses +

Continuing Education

Immunization MMWRs

Pink Book Webinars

Patient Education

Provider Education Resources

Quality Improvement Projects

Workforce Improvement Projects

Related Link

[Vaccines & Immunizations](#)

[VIS](#)

[ACIP Recommendations](#)

[Schedules](#)

[<< Back to Vaccines Home](#)



CDC offers numerous education and training programs for healthcare personnel. A variety of topics and formats are available. All are based on vaccine recommendations made by the Advisory Committee on Immunization Practice (ACIP).

Physicians, nurses, health educators, pharmacists, and other healthcare professionals are invited to apply for continuing education credits/contact hours, when available.

COVID-19 Vaccination Training Programs & Reference Materials

Find a list of immunization training and educational materials, including basic and COVID-19-vaccine-specific information.

[More](#)



You Call The Shots

Series of modules that explain the latest recommendations for vaccine use that include self-test practice questions



Current Issues in Immunization NetConference (CIINC)

Live, 1-hour presentations via conference call including question and answer session



Immunization Courses

Webcasts, and self-study education and training programs for healthcare personnel



Patient Education

Educational materials that complement personal education and advice for patients



CE Credit for Immunization Courses

A guide and video show how to obtain continuing education credit or print a certificate of attendance



Quality Improvement Projects

Resources for providers seeking quality improvement projects that may be required for maintenance of certification



Pink Book Webinar Series

1-hour webinars that explore the chapters of the 'Epidemiology and Prevention of Vaccine-Preventable Diseases' book



Workforce Improvement Projects

Resources and curriculum materials for health professions faculty and institutions



Vaccine Storage and Handling Toolkit

Updated with COVID-19 Vaccine Storage and Handling Information
Addendum added September 29, 2021



Healthcare Providers / Professionals

Healthcare Professionals / Providers Home > Administration Tools > Vaccine Administration

Healthcare Professionals / Providers Home

Clinical Resources +

Administration Tools -

Vaccine Storage & Handling +

Vaccine Administration -

Review Immunization History

Resource Library

[Print](#)



Web-based Training Courses

Vaccine Administration e-Learn

A self-paced vaccine administration course that provides comprehensive training using videos, job aids, and other resources.

You Call the Shots

An interactive, web-based immunization training course that includes practice.

Videos

Title: [Comfort and Restraint Techniques](#)

Short Description: This training demonstrates comfort and restraint techniques. Determine the best position for the patient based on comfort, age, activity level, administration site, and safety. Instruct the parent on how to help the infant or child stay still so you can administer the vaccine(s) safely.

Title: [Assemble a Manufacturer-filled Syringe](#)

Short Description: This training addresses how to assemble a manufacturer-filled syringe, available for a variety of vaccines. CDC recommends that providers only prepare vaccines just prior to administration. Always prepare vaccines in a designated area that is not near any area where potentially contaminated items are placed.

Title: [Single-Dose Vial](#)

Short Description: This training addresses how to prepare vaccine from a single-dose vial. A single-dose vial contains one dose and should be administered one time to one patient. CDC recommends that providers only prepare and draw up any vaccine just prior to administration.

Title: [Expiration Date](#)

Short Description: This training addresses how to determine when a vaccine or diluent expires—a critical step in vaccine preparation. All vaccines and diluents have an expiration date that indicates the date by which the product must be used. Vaccines and diluents may be used up to and including the expiration date unless the manufacturer indicates otherwise.

Title: [Multidose Vial \(MDV\)](#)

Short Description: This training addresses how to prepare vaccine from a multidose vial (MDV), which contains more than one dose of vaccine. CDC recommends that providers only prepare and draw up any vaccine just prior to administration.

YOU CALL THE SHOTS Vaccine Administration: Needle Gauge and Length

Vaccines must reach the desired tissue to provide an optimal immune response and reduce the likelihood of injection-site reactions. Needle selection should be based on the:

- Route
- Age
- Gender and weight for adults
- Injection site

(19 years and older)

The following table outlines recommended needle gauges and lengths. In addition, clinical judgment should be used when selecting needles to administer injectable vaccines.

Route	Age	Needle gauge and length	Injection site
Subcutaneous injection	All ages	23–25-gauge 5/8 inch (16 mm)	Thigh for infants younger than 12 months of age ¹ ; upper outer triceps area for persons 12 months of age and older
	Neonate, 28 days and younger	22–25-gauge 5/8 inch (16 mm) ²	Vastus lateralis muscle of anterolateral thigh

YOU CALL THE SHOTS Vaccine Administration: Intramuscular (IM) Injection: Infants 11 months of age and younger

Administer these vaccines by IM injection:

- Diphtheria, tetanus, and pertussis (DTaP)
- Diphtheria, tetanus, pertussis, polio, and hepatitis B (DTaP-IPV-HepB)
- Diphtheria, tetanus, pertussis, polio, and *Haemophilus influenzae* type b (DTaP-IPV/Hib)
- Adults, 19 years and older:
 - Men, 130–152 lbs (60–69 kg)
 - Men, 152–260 lbs (69–118 kg)
 - Women, 152–200 lbs (69–91 kg)
 - Men, 260 lbs (118 kg) and older
 - Women, 200 lbs (91 kg) and older

Notes: Age, recommendations for use, and other indications vary by product. Always review manufacturer's product information as well as the current immunization schedule for children (www.cdc.gov/vaccines/schedules/hcp/imm-child-adolscens.html) before administering vaccine. ¹May also be administered by subcutaneous injection.

To ensure vaccines are safe and effective, it's important to prepare and administer them correctly:

- Follow aseptic technique.
- Use a new, separate needle and syringe for each injection.
- Perform hand hygiene before vaccine preparation, between patients, when changing gloves (if worn), and any time hands become soiled.³

³Gloves are not required unless the person administering the vaccine is likely to come in contact with potentially infectious body fluids or has open lesions on the hands. If worn, perform hand hygiene and change gloves between patients.

1. Use the correct syringe and needle.

- Administer the vaccine using either a 1-mL or 3-mL syringe.
- Use the correct gauge and needle length.⁴
 - 22- to 25-gauge needle
 - 1-inch (25 mm) needle

⁴A 5/8-inch (16 mm) needle may be used for neonates, 28 days of age and younger, if the skin is stretched tightly and the subcutaneous tissue is not bunched.

2. Identify the injection site.

- Recommended site: the vastus lateralis muscle in the anterolateral thigh
- Use anatomical landmarks to determine the injection site. The muscle is located on the anterior lateral aspect of the thigh. The middle third of the muscle is used for injections—above the lateral condyle and below the greater trochanter.

3. Administer the vaccine correctly.

- Inject the vaccine into the middle and thickest part of the muscle. Insert the needle at a 90-degree angle and inject all the vaccine in the muscle tissue.

- Aspiration (i.e., pulling back on the plunger) is not necessary before injecting the vaccine. No large blood vessels are present at the recommended injection site, and a process that includes aspiration might be more painful.

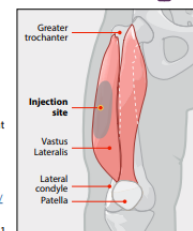
For more information, see <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/administration.html>

- If administering more than one injection in the same limb, separate the injection sites by 1 inch, if possible.

For additional information, go to CDC's clinical resources on vaccine administration

Advisory Committee on Immunization Practices General Best Practice Guidelines for Immunization: Vaccine Administration section at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/administration.html
Vaccine administration resource library at www.cdc.gov/vaccines/hcp/admin/resource-library.html

Vastus Lateralis Muscle



Email Services and Websites

- Questions? Email CDC nipinfo@cdc.gov or [CDC INFO | CDC](#)
- Vaccines and Immunizations website [Vaccines and Immunizations | CDC](#)
- HCP education [Vaccines and Immunizations | CDC](#)
- COVID-19 vaccine clinical materials [U.S. COVID-19 Vaccine Product Information | CDC](#)
- Vaccinate with Confidence [COVID-19 Vaccine Confidence | CDC](#)
- Influenza [Influenza \(Flu\) | CDC](#)
- Vaccine safety [Vaccine Information and Safety Studies | Vaccine Safety | CDC](#)