COVID-19 Vaccine Summary Chart

APhA COVID-19 RESOURCES: KNOW THE FACTS

Quick Links

- CDC: Frequently Asked Questions about COVID-19 Vaccination
- CDC: Understanding and Explaining Viral Vector COVID-19 Vaccines
- FDA: COVID-19 Vaccines
- CDC: V-safe After Vaccination Health Checker
- CDC: VaxText℠ COVID-19 Vaccination Second-Dose Reminder
- USP: COVID-19 Vaccine Handling: Operational Considerations for Healthcare Practitioners

For the Pfizer-BioNTech vaccine, this chart covers information for the adult-indicated vaccine only. The Pfizer-BioNTech COVID-19 vaccine is now recommended for children ages 5–11 years old. Children require a smaller dose and therefore, providers must use the pediatric-indicated Pfizer-BioNTech COVID-19 vaccine to vaccinate this population. For information about the pediatric-indicated vaccine, reference APhA's "COVID-19 Vaccination in Adolescents and Children" resource in the COVID-19 Resources: Know the Facts library.

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
FDA Approval	Issued August 23, 2021 • For use in adults ages 16 years and older	Issued January 31, 2022 • For use in adults ages 18 years and older	
Prescribing Information	Comirnaty Package Insert		
Emergency Use Authorization	Issued December 11, 2020 Revised May 10, 2021 • For use in persons ages 12-15 years old Revised October 29, 2021 • For use in persons ages 5-11 years old (not detailed in this chart)	Issued December 18, 2020	Issued February 27, 2021
Fact sheet	• Health care providers • Recipients/caregivers	• Health care providers • Recipients/caregivers	• Health care providers • Recipients/caregivers
ACIP recommendations	Interim recommendation for use: Persons aged **≥5 years** for prevention of COVID-19	Interim recommendation for use: Persons aged **≥18 years** for prevention of COVID-19	Interim recommendation for use: Persons aged **≥18 years** for prevention of COVID-19

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
CDC resources	Pfizer-BioNTech COVID-19 Vaccine	Moderna COVID-19 Vaccine	Janssen COVID-19 Vaccine
CDC clinical considerations	Interim Clinical Considerations		

Dosing and Administration			
Vaccine type	mRNA		Viral Vector
Administer	Intramuscular (I.M.)		
Administration Errors	Refer to CDC's COVID-19 Vaccine Administration Errors of Deviations guide for information about how to prevent and report administration errors. Reference additional scenarios that deviate from CDC recommendations but are not considered administration errors.		
Primary Vaccine Series			
Dose	30 mcg (**0.3 mL each**) for individuals ≥12 years old; for individuals ages 5-11 years old, use pediatric-indicated vaccine (not detailed in this chart)	100 mcg (**0.5 mL each**)	$5x10^{10}$ viral particles (**0.5 mL each**)
Doses per vial	6	10-11 dose vial or 13-15 dose vial	5
Schedule	Two-dose series	Two-dose series	Single dose
Recommended interval	At least 3–8 weeks from first dose*	At least 4–8 weeks from first dose*	N/A
Additional Dose			
Additional dose recommendations	Recommended for moderately or severely immunocompromised individuals ≥5 years old	Recommended for moderately or severely immunocompromised individuals ≥18 years old	
Recommended interval	≥ 28 days after primary series		

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
Dosing and Administration *(continued)*			
Additional Dose (continued)			
Additional dose options	Individuals ≥18 years old: • Pfizer-BioNTech 0.3 mL • Moderna 0.5 mL** Individuals 12-17 years old: • Pfizer-BioNTech 0.3 mL Individuals 5-11 years old: • Pfizer-BioNTech 0.2 mL (Pediatric-indicated vaccine)	Individuals ≥18 years old: • Moderna 0.5 mL • Pfizer-BioNTech 0.3 mL**	
Booster Dose			
Booster dose eligibility based on primary series	Recommended for people aged ≥ 5 years	Recommended for people aged ≥ 18 years	Recommended for people aged ≥ 18 years
Recommended interval	**≥ 5 months** after primary series; or **≥ 3 months** after three-dose primary series for individuals who are moderately or severely immunocompromised		**≥ 2 months** after initial dose; or after primary series for individuals who are moderately or severely immunocompromised

**An 8-week interval may be optimal for some people ages 5 years and older , and especially for males ages 12 through 39 years, who are not moderately or severely immunocompromised. A shorter interval (3 weeks for Pfizer-BioNTech; 4 weeks for Moderna) between the first and second dose remains the recommended interval for: people who are moderately or severely immunocompromised; adults ages 65 years and older; and others who need early protection due to increased concern about community transmission or risk of severe disease.*

***If the product administered for the primary series is unavailable, an alternative mRNA COVID-19 vaccine may be given as an additional dose.*

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
Booster Dose (continued)			
Booster dose options	**Individuals ages 5-11 years old** may only receive Pfizer-BioNTech 0.2 mL (Orange Cap) **Individuals ages 12-17 years old** may only receive Pfizer-BioNTech 0.3mL (Purple or Gray Cap) **Individuals aged ≥ 18 years** have the option to receive any of the FDA-approved/authorized COVID-19 booster products, but the Pfizer-BioNTech and Moderna vaccines are preferred in most situations Pfizer-BioNTech 0.3 mL **OR** Moderna 0.25 mL (Red Cap) **OR** Moderna 0.5 mL (Blue Cap) **OR** Janssen (J&J) 0.5 mL		
Second Booster Dose			
Second booster dose eligibility based on primary series	Recommended for people • aged ≥ 50 years • aged ≥ 12 years and who are moderately or severely immunocompromised		
Recommended interval	**≥ 4 months** after first booster dose		
Booster dose options	Pfizer-BioNTech 0.3 mL **OR** Moderna 0.25 mL (Red Cap) **OR** Moderna 0.5 mL (Blue Cap)		

Storage*			
How product arrives	Frozen liquid. No preservative.		Liquid suspension. No preservative.
Long-term storage	Purple Cap: Ultra-low freezing until expiry date** OR store frozen between -25°C to -15°C (-13°F to 5°F) for up to 2 weeks Gray Cap: Ultra-low freezing until expiry date**** OR store in the refrigerator for up to 10 weeks prior to use; if product is received at refrigerated temperature, do NOT refreeze	Red and Blue Cap: Store frozen between -50°C to -15°C (-58°F to 5°F) until expiry date; check expiry date here: https://www.modernatx.com/covid19vaccine-eua/providers/vial-lookup	Refrigerate until expiry date; check the expiry date here: https://vaxcheck.jnj/

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
Storage* *(continued)*			
Thawing	Purple Cap: Thaw in refrigerator for at least 2–3 hours or at room temperature; must be at room temperature for at least 30 mins before dilution; do NOT refreeze Gray Cap: Thaw in refrigerator for about 6 hours or at room temperature for 30 minutes prior to use; do NOT refreeze	Red and Blue Cap: Thaw in refrigerator for at least 2–3 hours or at room temperature; must be at room temperature for at least 30 mins before administration; do NOT refreeze	Product is stored frozen by manufacturer until shipped at refrigerated temperatures; If vaccine is still frozen upon receipt, thaw at refrigerated temperature or if immediate use is required, thaw at room temperature; do NOT refreeze
Max time refrigerated unpunctured	Purple Cap: 30 days Gray Cap: 10 weeks	Red and Blue Cap: 30 days	Until expiry date
Max time at room temperature unpunctured	Purple Cap: 2 hours Gray Cap: 12 hours	Red and Blue Cap: 24 hours	12 hours
Dose Preparation			
Dilution	Purple Cap: Dilute with 1.8 mL of 0.9% sodium chloride (normal saline, preservative free) Gray Cap: NOT diluted	Red and Blue Cap: Not diluted.	
Coloring	Red and Blue Cap: Off-white suspension		Colorless to slightly yellow, clear very opalescent suspension

***Temperature Key:

- Ultra-low Frozen Temperature: -90°C to -60°C (-130°F to 76°F)
- Pfizer-BioNTech Frozen Temperature: -25°C to -15°C (-13°F to 5°F)
- Moderna Frozen Temperature: -50°C to -15°C (-58°F to 5°F)
- Refrigerated Temperature: 2°C to 8°C (36°F to 46°F)
- Room Temperature: 9°C to 25°C (47°F to 77°F)

*****Note: Cartons and vials of Pfizer-BioNTech COVID-19 Vaccine with an expiry date of August 2021 through February 2022 printed on the label may remain in use for 3 months beyond the printed date as long as authorized storage conditions between -90°C to -60°C (-130°F to -76°F) have been maintained.*

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
Dose Preparation *(continued)*			
Handling	Do NOT shake; **invert only**	Red and Blue Cap: Do NOT shake; **swirl before drawing up dose**	
Max time refrigerated after first punctured	Purple Cap: 6 hours after dilution Gray Cap: 12 hours	Red and Blue Cap: 12 hours	6 hours
Max time at room temperature after first punctured	Purple Cap: 6 hours after dilution Gray Cap: 12 hours	12 hours Maximum of 20 punctures into vial septum; after this, discard unused doses	**2 hours**
Efficacy and Safety Data			
Patient Counseling	• **Injection site:** Pain, swelling, erythema at injection site, localized axillary lymphadenopathy (80%–89% of vaccinated persons*) • **Systemic:** Fever, fatigue, headache, chills, myalgia, arthralgia (55%–83% of vaccinated persons*; acetaminophen or ibuprofen may be used) • These symptoms tend to be more common after the second dose and resolve 1–3 days after vaccination • Reports suggest there is an increased risk of myocarditis and pericarditis, particularly in young adults, after vaccination; symptom onset generally occurs within a few days after vaccination and resolve with appropriate medical management; refer to CDC's guidance on Myocarditis and Pericarditis • Anaphylaxis following vaccination is noted in US postmarket surveillance at a rate of 4.7 cases/million for Pfizer-BioNTech and at a rate of 2.5 cases/million for Moderna as of 1/18/21; unless contraindicated, benefit of vaccination outweighs risk of anaphylaxis; refer to CDC's guidance on Managing Anaphylaxis • Access a comprehensive summary of local reactions, systemic reactions, adverse events, and serious adverse events for the Pfizer or Moderna COVID-19 vaccines ** Depending on the vaccine, age group, and vaccine dose*		• **Injection site:** Pain, swelling, erythema • **Systemic:** Headache, fatigue, muscle ache, nausea, fever • Warn about the rare potential onset of symptoms of thrombocytopenia syndrome (TTS) 1–2 weeks after vaccination, including shortness of breath, chest pain, leg swelling, abdominal pain, persistent headache, or bruising around injection site. • Access a comprehensive summary for the Janssen COVID-19 vaccine.

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
Efficacy and Safety Data *(continued)*			
Contraindications	• If the person has a history of a severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of the COVID-19 vaccine or a history of a known diagnosed allergy to a component of the COVID-19 vaccine, do not vaccinate with the same type of COVID-19 vaccine (i.e., mRNA or Janssen COVID-19 vaccine) • Do not vaccinate with the Janssen COVID-19 vaccine if the person developed TTS following receipt of a previous Janssen COVID-19 vaccine (or other COVID-19 vaccines not currently authorized in the United States that are based on adenovirus vectors, e.g., AstraZeneca)		

Precautions	• The following are precautions, but the benefits of vaccination usually outweigh the risks:
	  • Person has a history of an immediate allergic reaction to any vaccine other than COVID-19 vaccine or to any injectable therapy
	  • People with a history of a non-severe, immediate (onset less than 4 hours) allergic reaction after a dose of one type of COVID-19 vaccine (i.e., mRNA or Janssen) have a precaution to the same type of COVID-19 vaccine
	  • People with an allergy-related contraindication to one type of COVID-19 vaccine have a precaution to the other type of COVID-19 vaccine
	• Defer vaccination until individuals with a moderate or severe illness have improved
	• A subsequent dose of any COVID-19 vaccine should generally be avoided in individuals with a history of myocarditis or pericarditis after a dose of an mRNA COVID-19 vaccine		

Clinical Considerations	
Interchangeability of COVID-19 vaccines	In general, COVID-19 vaccines are not interchangeable; some nuances include: • If the first dose of an mRNA COVID-19 vaccine was received, but the patient is unable to complete the series (e.g., contraindication), then the Janssen COVID-19 vaccine may be given at a minimum interval of 28 days from mRNA dose and the patient is considered to have received a valid, single-dose Janssen vaccination, not a mixed vaccination series • If the mRNA COVID-19 vaccine product given for the first dose cannot be determined and it has been at least 28 days, a second dose of either product can be administered • For moderate to severely immunocompromised individuals, if the original mRNA vaccines administered is not available it is acceptable to administer the other mRNA vaccine

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
Clinical Considerations *(continued)*			
Coadministration with other vaccines	May be administered without regard to timing (can be administered on same day and without waiting period); if multiple vaccines are administered at a single visit, administer each injection in a different injection site per best practices; have discussion with patient regarding potential vaccine reactions and how to manage		
Coadministration with antipyretic/analgesic	Prophylactic administration of antipyretic or analgesic medications for the prevention of postvaccination symptoms is NOT recommended; these medications *may be used if postvaccination symptoms occur, and patient need exists*		
Persons with a history of SARS-CoV-2 infection	Vaccination should be offered regardless of prior SARS-CoV-2 infection		
Persons with a history of MIS-C or MIS-A	There is limited data on the safety and efficacy of COVID-19 vaccines in people with a history of multisystem inflammatory syndrome in children (MIS-C) or in adults (MIS-A); access more information on the risks and benefits		
Persons treated with antibodies	Persons who received monoclonal antibody therapy for treatment of COVID-19 infection can receive a COVID-19 vaccination after they recover from COVID-19 disease; there is no longer a need for a waiting period in between therapy and vaccination		
Persons vaccinated outside of the U.S.	Recommendations for people vaccinated outside of the United States depend on the vaccine(s) received for the primary series, whether the primary series was completed, and whether a booster dose was received; for more information, or to determine whether an individual is eligible to receive additional or booster doses, refer to CDC's interim guidance for persons vaccinated outside of the U.S.		

Persons who received COVID-19 vaccine as part of a clinical trial	• Persons who received COVID-19 vaccine as part of a clinical trial are considered fully vaccinated, if:
	  • They received all of the recommended "active" (not placebo) primary series doses of a WHO-EUL COVID-19 vaccine that is not FDA-approved or FDA-authorized
	  • They did not receive a WHO-EUL COVID-19 vaccine, but a U.S. data and safety monitoring board or equivalent has independently confirmed efficacy (i.e., Novavax COVID-19 Vaccine, Moderna COVID-19 Vaccine in children aged 6-17 years)
	• For more information, or to determine whether an individual is eligible to receive additional or booster doses once they are considered fully vaccinated, refer to CDC's interim guidance on persons vaccinated in clinical trials		

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
Additional Considerations by Age			
Children and adolescents (<18 years old)	Children and adolescents ≥5 years of age are eligible for vaccination; considerations for vaccinating this age group are covered in APhA's "COVID-19 Vaccination in Adolescents and Children" resource in the COVID-19 Resources: Know the Facts library	Not recommended to persons <18 years of age	Not recommended to persons <18 years of age
Women aged < 50 years	No additional considerations.	No additional considerations.	May receive Janssen COVID-19 vaccine; should be made aware of the rare risk of TTS and the availability of mRNA vaccines

Additional Considerations for People with Underlying Medical Conditions	
Immunocompromised persons	• Individuals ≥ 12 years of age who are moderately or severely immunocompromised should receive a three-dose primary series, which includes a two-dose series of an mRNA COVID-19 vaccine followed by an additional dose of mRNA COVID-19 vaccine 28 days later and then a first booster dose 3 months after the additional dose (third dose) followed by a second booster dose at least 4 months after the first booster dose • Individuals ≥ 18 years of age who received the Janssen COVID-19 vaccine should receive an additional dose of mRNA COVID-19 vaccine 28 days later followed by a booster dose 2 months later • Individuals ages 5–11 years old should receive a three-dose primary series followed by a booster dose of the pediatric-indicated Pfizer-BioNTech COVID-19 vaccine; for more information, reference APhA's "COVID-19 Vaccination in Adolescents and Children" resource in the COVID-19 Resources: Know the Facts library • Counsel on the potential for a reduced immune response to the vaccine (efficacy) and the need to follow current guidance to protect themselves against COVID-19 (e.g., masks, social distancing)

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
Additional Considerations for People with Underlying Medical Conditions *(continued)*			
Persons with autoimmune disorder	May be vaccinated; no safety and efficacy data available, but persons with autoimmune disorders were included in clinical trials		
People with a history of myocarditis or pericarditis	People with a history of myocarditis/pericarditis unrelated to an mRNA COVID-19 vaccine may receive any FDA-authorized COVID-19 vaccine as long as the episode of has resolved; people with a history of myocarditis/pericarditis after first dose of mRNA COVID-19 vaccine should speak with their physician to determine whether they should receive a second dose		
Persons with a history/risk for thrombosis	No additional considerations.	No additional considerations.	Persons with a history of an episode of an immune-mediated syndrome characterized by thrombosis and thrombocytopenia, such as heparin-induced thrombocytopenia (HIT), should avoid use; persons with a history or risk of venous thromboembolism are not believed to be more susceptible to TTS following receipt of vaccine
Persons with a history of Guillain-Barre syndrome	May receive any FDA-Approved or authorized COVID-19 vaccine; should be made aware of the possible association between the Janssen COVID-19 vaccine and an increased risk of GBS, a patient with a history of GBS and the availability of mRNA COVID-19 vaccines		
Other special populations	Persons with a history of Bell's palsy may be vaccinated; persons with a history of dermal filler use may experience temporary swelling at or near the site of filler injection following vaccination and should follow up with their health care provider if this occurs		

Additional Considerations for People Who Are Pregnant or Lactating	
Pregnant/lactating persons	COVID-19 vaccination is recommended for people who are pregnant, lactating, trying to get pregnant now, or who might want to be pregnant in the near future; postauthorization safety monitoring of >30,000 pregnant women has not revealed a safety problem; mRNA and viral vector COVID-19 vaccines are not considered live virus vaccines and are not considered a risk to the breastfeeding infant

COVID-19 Vaccine Summary Chart (continued)

Vaccine	Comirnaty and Pfizer-BioNTech (BNT162b2)	Spikevax and Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
Ingredients			
	• Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2 • 2[(polyethylene glycol)†-2000]-N,N-ditetradecylacetamide • 1,2-distearoyl-sn-glycero-3-phosphocholine • Cholesterol • (4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate) • Potassium chloride • Monobasic potassium phosphate • Sodium chloride • Dibasic sodium phosphate dihydrate • Sucrose	• Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2 • Polyethylene glycol (PEG)* 2000 dimyristoyl glycerol (DMG) • 1,2-distearoyl-sn-glycero-3-phosphocholine • Cholesterol • SM-102 (proprietary to Moderna) • Tromethamine • Tromethamine hydrochloride • Acetic acid • Sodium acetate • Sucrose	• Recombinant, replication-incompetent Ad26 vector, encoding a stabilized variant of the SARS-CoV-2 Spike (S) protein • Citric acid • Trisodium citrate • Ethanol • 2-hydroxypropyl-β-cyclodextrin • Polysorbate-80* • Sodium chloride

† *As of March 1, 2021, mRNA COVID-19 vaccines are the only vaccines in the United States that contain PEG, though several vaccines contain polysorbate (more information can be found in CDC's vaccine excipient summary).*