

# COVID-19 Vaccine Summary Chart

Find the following information in this quick reference for pharmacy:

- Quick links and guidance
- Dose preparation
- Clinical considerations
- Dosing and administration
- Efficacy and safety information
- Special populations
- Storage
- Ingredients

Quick Links	
<ul style="list-style-type: none"> <li><a href="#">CDC: Frequently Asked Questions about COVID-19 Vaccination</a></li> <li><a href="#">CDC: Understanding and Explaining Viral Vector COVID-19 Vaccines</a></li> <li><a href="#">FDA: COVID-19 Vaccines</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">CDC: V-safe After Vaccination Health Checker</a></li> <li><a href="#">CDC: VaxText<sup>SM</sup> COVID-19 Vaccination Second-Dose Reminder</a></li> <li><a href="#">USP: COVID-19 Vaccine Handling: Operational Considerations for Healthcare Practitioners</a></li> </ul>

Vaccine	Pfizer-BioNTech (BNT162b2)	Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
<b>EUA</b>	<a href="#">Issued December 11, 2020</a>	<a href="#">Issued December 18, 2020</a>	<a href="#">Issued February 27, 2021</a>
<b>Fact sheet</b>	<ul style="list-style-type: none"> <li><a href="#">Health care providers</a></li> <li><a href="#">Recipients/caregivers</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Health care providers</a></li> <li><a href="#">Recipients/caregivers</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Health care providers</a></li> <li><a href="#">Recipients/caregivers</a></li> </ul>
<b>ACIP</b>	<a href="#">Interim recommendation for use:</a> Persons aged <b>≥12 years</b> for prevention of COVID-19	<a href="#">Interim recommendation for use:</a> Persons aged <b>≥18 years</b> for prevention of COVID-19	<a href="#">Interim recommendation for use:</a> Persons aged <b>≥18 years</b> for prevention of COVID-19
<b>CDC resources</b>	<a href="#">Pfizer-BioNTech COVID-19 Vaccine</a>	<a href="#">Moderna COVID-19 Vaccine</a>	<a href="#">Janssen COVID-19 Vaccine</a>
<b>CDC clinical considerations</b>	<a href="#">Interim Clinical Considerations</a>		

Continues.



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<b>Dosing and Administration</b>			
<b>Vaccine type</b>	mRNA		Viral Vector
<b>Administer</b>	Intramuscular (I.M.)		
<b>Dose</b>	30 mcg ( <b>0.3 mL each</b> )	100 mcg ( <b>0.5 mL each</b> )	5x10 <sup>10</sup> viral particles ( <b>0.5 mL each</b> )
<b>Doses per vial</b>	6	10-11 dose vial or 13-15 dose vial	5
<b>Schedule</b>	Two-dose series	Two-dose series	Single dose
<b>Recommended interval</b>	21 days from first dose	28 days from first dose	N/A
<b>Earliest interval</b>	17 days from first dose	24 days from first dose	N/A
<b>Latest interval</b>	42 days from first dose		N/A
<b>Administration Errors</b>	Refer to CDC's <a href="#">COVID-19 Vaccine Administration Errors of Deviations</a> guide for information about how to handle these situations.		

Continues.



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Vaccine	Pfizer-BioNTech (BNT162b2)	Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
<b>Storage*</b>			
<b>How product arrives</b>	Frozen liquid. No preservative.		Liquid suspension. No preservative.
<b>Long-term storage</b>	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	Store frozen between -50°C to -15°C (-58°F to 5°F) until expiry date	Refrigerate until expiry date
<b>Thawing</b>	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	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
<b>Max time refrigerated unpunctured</b>	30 days	30 days	Until expiry date
<b>Max time at room temperature unpunctured</b>	2 hours	24 hours	12 hours

\*Temperature Key:

- Ultra-low Frozen Temperature: -80°C to -60°C (-112°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)

*Continues.*



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Vaccine	Pfizer-BioNTech (BNT162b2)	Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
<b>Dose Preparation</b>			
<b>Dilution</b>	Dilute with 1.8 mL of 0.9% sodium chloride (normal saline, preservative free).	Not diluted.	
<b>Coloring</b>	Off-white suspension		Colorless to slightly yellow, clear very opalescent suspension
<b>Handling</b>	Do NOT shake; <b>invert only</b>	Do NOT shake; <b>swirl before drawing up dose</b>	
<b>Max time refrigerated after first punctured</b>	6 hours after dilution	12 hours	6 hours
<b>Max time at room temperature after first punctured</b>	6 hours after dilution	12 hours	<b>2 hours</b>
<b>Efficacy and Safety Information</b>			
<b>Publications</b>	<a href="#">Dagan, et al. NEJM. Feb 24, 2021</a> <a href="#">Polack, et al. NEJM. Dec 31, 2020</a> <a href="#">Walsh, et al. NEJM. Dec 17, 2020</a>	<a href="#">Baden, et al. NEJM. Feb 4, 2021</a> <a href="#">Anderson, et al. NEJM. Dec 17, 2020</a> <a href="#">Jackson, et al. NEJM. Nov 12, 2020</a>	<a href="#">Sadoff, et al. NEJM. Jan 13, 2021</a>
<b>Overall efficacy; prevention of COVID-19 infection</b>	<b>95%</b> beginning 7 days after second dose: <a href="#">primary analysis</a> of Phase III trial data in 43,538 volunteers	<b>94%</b> beginning 14 days after second dose: <a href="#">primary analysis</a> of Phase III trial data in >30,000 volunteers	<b>67%</b> beginning 14 days after single dose: <a href="#">primary analysis</a> of Phase III trial data in >40,000 volunteers
<b>Prevention of severe COVID-19 infection</b>	<b>89%</b>	<b>100%</b>	<b>85%</b>
<b>Prevention of asymptomatic COVID-19 infection</b>	Under evaluation	Limited data suggest some degree of prevention	Data suggest a 60% reduction in asymptomatic infection from 29 days after dose

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Vaccine	Pfizer-BioNTech (BNT162b2)	Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
<b>Efficacy and Safety Information</b> (continued)			
<b>Study demographics</b>	Diversity of volunteers: 81.9% White; 26.2% Hispanic/Latino; 9.8% African American; 4.4% Asian; <3% other races/ethnicities  Age and sex distribution: 50.6% male; 49.4% female; 21.4% 65 years and older	Diversity of volunteers: 79.4% White; 20% Hispanic/Latino; 9.7% African American; 4.7% Asian; <3% other races/ethnicities  Age and sex distribution: 52.6% male; 47.4% female; 25.3% 65 years and older	Diversity of volunteers: 59% White; 45% Hispanic/Latino ; 19% African American; 3% Asian ; 9% Native American  Age and sex distribution: 55% male; 45% female; 34% 60 years and older
<b>Patient Counseling</b>	<ul style="list-style-type: none"> <li>• <b>Injection site:</b> Pain, swelling, erythema at injection site, localized axillary lymphadenopathy (80%–89% of vaccinated persons*)</li> <li>• <b>Systemic:</b> Fever, fatigue, headache, chills, myalgia, arthralgia (55%–83% of vaccinated persons*; acetaminophen or ibuprofen may be used)</li> <li>• These symptoms tend to be more common after the second dose and resolve 1–3 days after vaccination</li> <li>• 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 <a href="#">Myocarditis and Pericarditis</a></li> <li>• Anaphylaxis following vaccination is noted in US <a href="#">postmarket surveillance</a> 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 <a href="#">Managing Anaphylaxis</a></li> <li>• Access a comprehensive summary of local reactions, systemic reactions, adverse events, and serious adverse events for the <a href="#">Pfizer</a> or <a href="#">Moderna</a> COVID-19 vaccines</li> </ul> <p>* Depending on the vaccine, age group, and vaccine dose</p>		<ul style="list-style-type: none"> <li>• <b>Injection site:</b> Pain, swelling, erythema</li> <li>• <b>Systemic:</b> Headache, fatigue, muscle ache, nausea, fever</li> <li>• <b>Warn</b> about the <u>rare</u> 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.</li> <li>• Access a comprehensive summary for the <a href="#">Janssen</a> COVID-19 vaccine.</li> </ul>

Continues.



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Vaccine	Pfizer-BioNTech (BNT162b2)	Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
<b>Efficacy and Safety Information</b> (continued)			
<b>Contraindications</b>	<ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine               <ul style="list-style-type: none"> <li>Persons with a contraindication to mRNA COVID-19 vaccines (including due to a known allergy to polyethylene glycol [PEG]) have a precaution to Janssen COVID-19 vaccine, and vice versa</li> <li>Persons with a contraindication to Janssen COVID-19 vaccine (including due to a known allergy to polysorbate) have a precaution to mRNA COVID-19 vaccines</li> </ul> </li> <li>Immediate (within 4 hours) allergic reaction of any severity after a previous dose or known (diagnosed) allergy to a component of the vaccine (see ingredients below)</li> <li>Persons with contraindication to one mRNA vaccine should not receive doses of either mRNA vaccine (Pfizer-BioNTech or Moderna)</li> <li>If screen positive for a contraindication, do not vaccinate and consider referral to allergist-immunologist</li> </ul>		
<b>Precautions</b>	<ul style="list-style-type: none"> <li>Among persons without a contraindication, a history of any immediate (within 4 hours) allergic reaction to other vaccines or injectable therapies</li> <li>Persons with a contraindication to mRNA COVID-19 vaccines (Pfizer-BioNTech or Moderna) have a precaution to Janssen COVID-19 vaccine, and vice versa</li> <li>If screen positive for a precaution, complete a risk assessment, consider referral to allergist-immunologist, and observe for 30 minutes postvaccination</li> </ul>		

Continues.



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Vaccine	Pfizer-BioNTech (BNT162b2)	Moderna (mRNA-1273)	Janssen (Ad26.CoV2.S)
<b>Clinical Considerations</b>			
<b>Interchangeability of COVID-19 vaccines</b>	COVID-19 vaccines are not interchangeable; 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		
<b>Coadministration with other vaccines</b>	May be administered without regard to timing; it is unknown whether coadministration with other vaccines increases reactogenicity of the COVID-19 vaccine; providers should consider the benefits and risks of coadministration when deciding whether to co-administer other vaccines within 14 days of COVID-19 vaccination		
<b>Coadministration with antipyretic/analgesic</b>	Prophylactic administration of antipyretic or analgesic medications for the prevention of postvaccination symptoms is NOT recommended; these medications <i>may be used if postvaccination symptoms occur, and patient need exists</i>		
<b>Persons with a history of SARS-CoV-2 infection</b>	Vaccination should be offered regardless of prior SARS-CoV-2 infection; while vaccine supplies remain limited, persons with a history of infection may choose to delay vaccination, if desired		
<b>Persons with a history of MIS-C or MIS-A</b>	There is no 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		
<b>Persons treated with antibodies</b>	Persons who received antibody therapy for COVID-19 should defer vaccination for 90 days		
<b>Considerations for the Use of the Janssen COVID-19 Vaccine</b>			
<b>Women aged &lt; 50 years</b>	These persons may receive the vaccine but should be made aware of the rare risk of TTS after receipt of the Janssen COVID-19 vaccine and the availability of other FDA-authorized COVID-19 vaccines.		
<b>Persons with a history/risk for thrombosis</b>	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 the use of the Janssen COVID-19 vaccine; persons with a history or risk of venous thromboembolism are not believed to be more susceptible to TTS.		
<b>Use of aspirin or anticoagulants</b>	Persons who take these medications do not need to stop taking them prior to receiving the Janssen COVID-19 vaccine; it is not recommended to begin taking these medications prior to receiving this vaccine.		

Continues.



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<b>Special Populations</b>			
<b>Immunocompromised persons</b>	May be vaccinated; safety and efficacy data limited; 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); antiviral therapy is unlikely to impact development of a protective antibody response		
<b>Persons with autoimmune disorder</b>	May be vaccinated; no safety and efficacy data available, but persons with autoimmune disorders were included in clinical trials		
<b>Pregnant/lactating women</b>	May be vaccinated; pregnant or breastfeeding women were not included in the clinical trials; postauthorization <a href="#">safety monitoring</a> of >30,000 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		
<b>Children and adolescents</b>	Children and adolescents ages 12–17 years are eligible for vaccination; this age group may be at increased risk of syncope after any vaccine, including COVID-19; symptoms of <a href="#">myocarditis and pericarditis</a> have been reported after vaccination	Not recommended to persons ≤18 years of age	Not recommended to persons ≤18 years of age
<b>Other populations</b>	Persons with a history of Guillain-Barre syndrome or 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		

Continues.





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<b>Ingredients</b>	<ul style="list-style-type: none"> <li>• Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2</li> <li>• 2[(polyethylene glycol)*-2000]-N,N-ditetradecylacetamide</li> <li>• 1,2-distearoyl-sn-glycero-3-phosphocholine</li> <li>• Cholesterol</li> <li>• (4-hydroxybutyl)azanediylbis(hexane-6,1-diyl)bis(2-hexyldecanoate)</li> <li>• Potassium chloride</li> <li>• Monobasic potassium phosphate</li> <li>• Sodium chloride</li> <li>• Dibasic sodium phosphate dihydrate</li> <li>• Sucrose</li> </ul>	<ul style="list-style-type: none"> <li>• Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2</li> <li>• Polyethylene glycol (PEG)* 2000 dimyristoyl glycerol (DMG)</li> <li>• 1,2-distearoyl-sn-glycero-3-phosphocholine</li> <li>• Cholesterol</li> <li>• SM-102 (proprietary to Moderna)</li> <li>• Tromethamine</li> <li>• Tromethamine hydrochloride</li> <li>• Acetic acid</li> <li>• Sodium acetate</li> <li>• Sucrose</li> </ul>	<ul style="list-style-type: none"> <li>• Recombinant, replication-incompetent Ad26 vector, encoding a stabilized variant of the SARS-CoV-2 Spike (S) protein</li> <li>• Citric acid</li> <li>• Trisodium citrate</li> <li>• Ethanol</li> <li>• 2-hydroxypropyl-β-cyclodextrin</li> <li>• Polysorbate-80*</li> <li>• Sodium chloride</li> </ul>

\*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](#)).

*Disclaimer: Information related to the COVID-19 pandemic is changing rapidly and continuously. The material and information contained in this publication is believed to be current as of the date included on this document. The American Pharmacists Association assumes no responsibility for the accuracy, timeliness, errors or omission contained herein. Links to any sources do not constitute any endorsement of, validity, or warranty of the information contained on any site. The user of these materials should not under any circumstances solely rely on, or act based on this publication. Pharmacy professionals retain the responsibility for using their own professional judgment and practicing in accordance with all rules, regulations, and laws governing the pharmacy practice within their jurisdiction.*

