Issue Brief

COVID-19 Vaccine Comparison

March 2021

In December 2020, two COVID-19 vaccines were granted Emergency Use Authorization (EUA) by FDA. Produced by Pfizer/BioNTech and Moderna, both vaccines use the same technology (mRNA) and are highly effective at preventing COVID-19 infection. In February 2021, a COVID-19 vaccine developed by Janssen Biotech, Inc. was granted an EUA by FDA. A comparison of key details for each vaccine can be found below. This list is not exhaustive. For further details, see the FDA EUA document for Pfizer/BioNTech, Moderna, and Janssen.

	Pfizer/BioNTech vaccine	Moderna vaccine	Janssen vaccine
Target population	• Approved for people aged 16 and older.	• Approved for people aged 18 and older.	• Approved for people aged 18 and older.
Vaccine efficacy	• 95% effective at preventing symptomatic COVID-19 infection occurring at least seven days after administration of the second dose. • Vaccine is 100% effective against hospitalizations and deaths from COVID-19. • Efficacy rates did not vary based on demographic factors like age, race, or ethnicity. • Insufficient data to determine if asymptomatic infection or infection transmission is prevented.	• 94.1% effective at preventing symptomatic COVID-19 infection occurring at least 14 days after administration of the second dose. • Vaccine is 89% effective against hospitalizations and 100% effective against deaths from COVID-19. • Slightly lower efficacy in individuals older than 65. No difference in efficacy based on race or ethnicity. • Insufficient data to determine if asymptomatic infection or infection transmission is prevented.	• 66.9% effective at preventing moderate to severe COVID-19 infection occurring at least 14 days after vaccine administration globally. • 76.7% effective at preventing severe/critical COVID-19 infection occurring at least 14 days after vaccine administration in the United States. • 85.4% effective at preventing severe/critical COVID-19 infection occurring at least 28 days after vaccine administration in the United States. • Vaccine is 100% effective against hospitalizations and deaths from COVID-19. • Vaccine efficacy was similar across both age groups (18-59 and ≥60).

Vaccine administration	• Two shots are required, delivered 21 days apart. Each dose contains 30 micrograms of vaccine. • The vaccine must be diluted with saline before it is injected. • There are five doses in a vial. After dilution, one vial contains six doses of 0.3 mL. Vial labels and cartons may state that after dilution, a vial contains five doses of 0.3 mL.	• Two shots are required, delivered 28 days apart. Each dose contains 100 micrograms of vaccine. • The vaccine is ready to administer. • There are 10 doses in a vial. It can be stored in a refrigerator for 30 days and at room temperature for 12 hours.	• One shot is required. Each dose contains 500 micrograms (0.5 mL) of vaccine. • The vaccine is ready to administer. No dilution required. • There are five doses per vial. Once punctured, vials can be stored in a refrigerator for up to six hours or up to two hours at room temperature.
Possible side effects	• Most common side effects: injection site pain, fatigue, headache, muscle pain, joint pain, and fever. • Side effects are more common after the second dose and are reported more by younger adults. • Rarer side effects: severe allergic reactions, Bell's palsy.	• Most common side effects: injection site pain, fatigue, headache, muscle pain, joint pain, and fever. • Side effects are more common after the second dose and are reported more by younger adults. • Rarer side effects: Bell's palsy.	• Most common side effects: injection site reactions, headache, fatigue, myalgia, nausea, and fever. • Reactions were less commonly reported among participants 60 years of age and older. • Rarer side effects: post vaccination syndrome and radiculitis brachial.
Safety for pregnant/ lactating individuals	• No human data is available but interim data from animal studies show no issues. • Pregnant/lactating people should discuss the risks and benefits with their provider.	• No human data is available but completed animal studies show no issues. • Pregnant/lactating people should discuss the risks and benefits with their provider.	• No human data is available but completed animal studies show no issues. • Pregnant/lactating people should discuss the risks and benefits with their provider.
Storage requirements	• Frozen vials are shipped in thermal containers with dry ice. Vials should be removed from the thermal containers upon arrival and *preferably* stored in an ultra-low temperature freezer between -80°C to -60°C (-112°F to -76°F) until the expiry date printed on the label. • On Feb. 26, FDA announced that it is allowing *undiluted*	• Vials arrive frozen between -25°C to -15°C (-13°F to 5°F) and should be stored in the original carton to protect from light. Vials can be stored refrigerated between 2° to 8°C (36° to 46°F) for up to 30 days prior to first use.	• Must be transported at refrigerated temperatures of 2-8°C (36-46°F). • Can be stored for up to 3 months at refrigerated temperatures of 2-8°C (36-46°F).

	frozen vials of the Pfizer-BioNTech COVID-19 vaccine to be transported and stored at temperatures commonly found in pharmaceutical freezers at -25°C to -15°C (-13°F to 5°F) for up to 2 weeks. Vials must be kept frozen and protected from light until ready to use. • The alternative temperature for storage of frozen vials is *not* applicable to the storage of thawed vials before dilution or on the storage of thawed vials after dilution. • Full details about storage parameters are available here.		
Minimum purchase order	• An order of the vaccine includes 975 doses.	• An order includes 100 doses.	• Minimum order is 100 doses (20 vials) and comes with 100 dose ancillary kits.