

## A Comparison of Four COVID-19 Vaccines

	AstraZeneca-Oxford	Moderna	Pfizer-BioNTech	Johnson & Johnson-Janssen
<b>Effectivity</b>	Undetermined, estimated 70%, but could be 90% with lower initial dose	94%	95%	85% against severe disease 66% overall efficacy 72% efficacy in the US No COVID related deaths reported.
<b>Cost/Dose*</b>	\$4	\$10-\$50	\$20	\$10
<b>How many doses required?</b>	Two 30 days apart	Two 28 days apart	Two 21 days apart	Only one dose needed
<b>Expected side effects</b>	Fatigue, muscle and joint pain, headache, 1 reported case of transverse myelitis; not entirely known	Fatigue – 9.7% Muscle Pain – 8.9% Joint Pain – 5.2% Headache – 4.5% Symptoms can last a few days, especially after 2 <sup>nd</sup> dose	Fatigue – 3.8% Headache – 2.0% Chills, muscle pain, especially after the 2 <sup>nd</sup> dose	Studies not completed. So far 9% developed fever.  Injection site pain, headache, fatigue, muscle pain.
<b>Any significant side effects?</b>	Four total serious side effects, including two cases of transverse myelitis.	21 cases of anaphylaxis in people who received the vaccine, all in women.  Four cases of Bell's Palsy were reported in the clinical trials including 3 in the vaccine group, and 1 in the placebo group. This is not more than would be expected in the general population, however.	50 cases of anaphylaxis in people who received the vaccine, mostly women.  Four cases of Bell's palsy, a type of temporary facial paralysis, reported in people who received the vaccine. This is not more than would be expected in the general population.	One person went to hospital with a serious fever.
<b>Reported cases of <a href="#">Guillain-Barre Syndrome (GBS)</a>?</b>	Not yet available	To date, no cases of GBS have been seen in people vaccinated for COVID-19. The CDC says a history of GBS is not a reason to avoid vaccination.	To date, no cases of GBS have been seen in people vaccinated for COVID-19. The CDC says a history of GBS is not a reason to avoid vaccination.	Not yet available
<b>Method/Origin</b>	Weakened chimpanzee cold adenovirus	Messenger RNA (mRNA), which makes the spike protein	Messenger RNA (mRNA), which makes the spike protein	Modified cold virus codes for the spike protein
<b>Where is it made?</b>	Baltimore, Maryland, USA	Norwood, Massachusetts, USA Portsmouth, New Hampshire, USA (Lonza)	Kalamazoo, Michigan, USA Puurs, BELGIUM	J&J works with its subsidiary, Janssen Pharmaceuticals in Belgium.

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<b>When approved by the FDA?</b>	Not yet submitted. Approved in the UK on December 29, 2020. Approved in India on January 3, 2021	December 18, 2020	December 11, 2020	February 28, 2021
<b>Storage temperature</b>	2 to 8 deg C	-20 deg C for long term, one month at 2 to 8 deg C	-70 deg C for long term, 5 days at 2 to 8 deg C	Two year shelf life if stored at -20 deg C. It can be stored for three months at 2-8 deg C.
<b>How many doses made available?</b>	3 billion planned for 2021	20 million, starting Dec. 21; 80 million for U.S. in 2021	50 million, starting Dec. 18; 1.3 billion in 2021	16 million by the end of March, 2021
<b>Who is it recommended for?</b>	Not yet available	18 years and older	16 years and older	18 and older
<b>Positives/Negatives</b>	(+) Safe for use in elderly patients, children, and those with pre-existing conditions	(-) Higher cost possibility, especially regarding 2-dose requirement	(-) Limitations regarding storage temperatures limit distribution availability	(+) only one dose needed, can be stored in a regular refrigerator (-) Lower effectivity
*Costs are estimated based on varying reports. Costs are still being negotiated, and early doses are reported to be free for first patients.				

Ref: <https://www.webmd.com/vaccines/covid-19-vaccine/news/20201214/closer-look-at-three-covid-19-vaccines>