CEP Centre for Effective Practice

Vaccines at a glance

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		Pfizer	Moderna	AstraZeneca	Janssen (J&J)
Trial efficacy	Overall efficacy rate (clinical trial data)	95.0%	94.1%	59.9%	66.9%
	Efficacy rate against severe disease	>7 days after dose 2: **75%**	14 days after dose 2: **100%**	After dose 2: **100%**	28 days after dose: **85.4%**
	Number of trial participants who developed severe disease	1 vaccine/9 placebo	0 vaccine/30 placebo	0 vaccine/8 placebo	4 weeks after: 5 vaccine/34 placebo
Variants	Against variants **without** E484K mutation (higher transmission)	*Likely similar to overall*	*Likely similar to overall*	*Likely similar to overall*	*Unknown*
	Against variants **with** E484K mutation (higher transmission, increased severity)	*Likely reduced*	*Likely reduced*	*Likely reduced*	*Likely reduced*
	Variant-specific vaccine development underway	Y	Y	Y	Y
Type	Type	mRNA	mRNA	Viral vector	Viral vector
	Contain live virus?	N	N	N	N
Ethics	Tested in diverse racial/ethnic populations?	Y	Y	Y	Y
Admin	Number of shots	2	2	2	1
	Minimum interval between shots	21 days	28 days	12 weeks	-
Specific pops	Children	12-15*	16-18	N	N
	Adults > 65	Y	Y	N	Y
	Pregnant/breastfeeding	Y	Y	Y	Y
	Immunocompromised	Y	Y	Y	Y
AEFI	Rate of serious adverse events in Canada	0.012%	0.012 %	*Pending*	*Pending*
Common side effects	Pain at injection site	Y	Y	Y	Y
	Fatigue	Y	Y	Y	Y
	Headache	Y	Y	Y	Y
	Muscle pain	Y	Y	Y	Y
	Chills	Y	Y	Y	Y
	Joint pain	Y	Y	Y	Y
	Fever	Y	Y	Y	Y
	Nausea, vomiting or diarrhea	N	N	Y	Y (nausea)

Vaccines in depth

Trial efficacy	Due to the difference in efficacy between vaccines, some are asking if it's possible to get the AZ/Janssen vaccine first, and then a 'booster shot' with an mRNA vaccine at a later date. However, we don't know yet what the effect of a "mix and match" approach would be. It's not recommended right now, as the effect on safety and efficacy of immune protection is unknown. It may be possible to get an mRNA vaccine after a full course of AZ or Janssen, but there is little data to inform this decision at this time. We'll keep you updated at Vaccine Emerging Evidence (CEP)
Variants	Research is ongoing into the effect of the vaccines against the variants. Janssen's clinical trial was the only one that included an assessment of efficacy against certain variants, and then only against moderate to severe disease. Other studies are testing antibodies taken from vaccine recipients to determine their ability to neutralize synthetic spike proteins. However, neutralization studies may not be an accurate proxy for vaccine efficacy: it is possible for a person with a reduced neutralizing antibody response to be fully immune. We will not know how effective the other vaccines are against the variants until more research is done. For study details and updates, see Emerging Evidence: Vaccines and variants (CEP)
Type	Some patients may have concern about vaccines causing COVID-19. However, as none of the vaccines contain live virus, you can reassure them that they cannot cause COVID-19. For more information about how the vaccines work, see Types of COVID-19 Vaccines (CEP), and for more answers to patient questions about the vaccines, see Ensuring Patient Confidence in Vaccines (CEP)
Ethics	One contributor to low vaccine confidence in BIPOC communities is the historic exclusion of these communities from medical research – or the inclusion without informed consent. It's important that each vaccine trial included consenting participants of diverse racial and ethnic backgrounds. For more resources on understanding vaccine confidence in BIPOC communities, see Ensuring Patient Confidence in Vaccines (CEP)
Admin	The dosage interval for each vaccine is a minimum interval. In order to vaccinate as many people as possible with a first dose, a recent recommendation from NACI encourages extending the interval to as long as four months between doses. For more information, see Vaccine Administration (CEP)
Specific pops	*To receive the Pfizer vaccine, children 12-15 must meet certain criteria including high risk for severe COVID-19. See "Do the vaccines work in children?" (CEP) Adults > 65: Though the AZ vaccine is approved for those over 65, NACI does not recommend its use in this population due to limited study data. See AstraZeneca and Older Adults (CEP) Pregnant/breastfeeding individuals can receive the vaccine with informed consent. For more information see Emerging Evidence: Pregnant and breastfeeding individuals (CEP) Immunocompromised can receive the vaccine with informed consent. For more information see Emerging Evidence: Immunocompromised populations
AEFI	As millions of doses have been given worldwide, the Canadian Society of Allergy and Clinical Immunology (CSACI) identifies the risk for serious allergic reaction as low. For more information, including who should see an allergist before vaccination, see Emerging evidence: Adverse events (CEP)
Side effects	For more detailed information about side effects for each vaccine, see Pfizer, Moderna, AstraZeneca and Janssen (CEP) For a patient after-care guide including how to treat side effects, see Vaccine Administration (CEP)

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