

## COVID-19 Living Evidence Synthesis #6

What is the effectiveness of available COVID-19 vaccines for adults, including variants of concern and over time frames up to 120 days?

A variant of concern is a variant for which there is evidence of an increased risk of spread, more severe disease (for example, causing more hospitalizations or deaths), lower capacity of antibodies generated as a result of infection by the virus or vaccination to block its actions, reduced success of treatments or vaccines, or failure of diagnostic tests to detect the virus. **It is important to understand how COVID-19 variants of concern affect the virus' behaviour, including their impact on how well vaccines work among the adult population.**

### How have we done this living evidence synthesis?



We conducted a broad search in several databases and websites to retrieve studies evaluating the effectiveness of COVID-19 vaccines, including the [COVID-END Inventory of Evidence Syntheses](#).

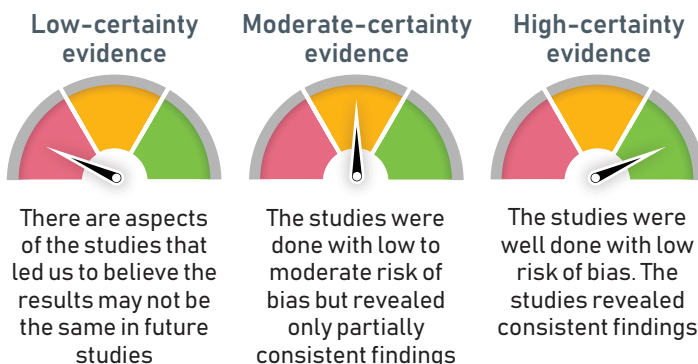


We examined the studies reporting data on how well vaccines work against variants of concern (more specifically, whether the vaccines prevent any infection, symptomatic infection, transmission, severe disease, and death).



We critically appraised the studies and determined the level of certainty of the body of evidence. The color indicates the level of certainty based on the evidence.

### Levels of certainty based on the best evidence available



### Vaccine\* effectiveness\*\* against Omicron

Outcome (and vaccine)	Number of doses	Time since last dose (days)	Effectiveness
<b>Any infection</b>			
Pfizer	2	44	26 – 55%
		60	6 – 49%
	3	30	34 – 55%
		60	58 – 74%
Moderna	2	90	36%
		44	37%
		60	48%
	3	30	24 – 30%
		60	46 – 64%
		60	60 – 61%
<b>Symptomatic infection</b>			
Pfizer	2	60	32 – 49%
		90	27 – 36%
		120	26 – 34%
	3	14	76%
		30	54 – 69%
		30 – 60	37 – 59%
		Up to 104	40 – 60%
Moderna	2	60	53%
		90	36%
	3	30	55 – 71%
		42 – 120	39 – 67%
AstraZeneca	2	60	34%
		90	29%
AstraZeneca followed by Pfizer or Moderna	2 AstraZeneca 1 Pfizer	60	16 – 53%
	2 AstraZeneca 1 Moderna	60	18 – 61%
<b>Transmission</b>			
No evidence available			
<b>Severe disease (may include death in some studies)</b>			
Pfizer	3	7 – 42	91%
		60	75 – 91%
Moderna	3	7 – 42	81%
<b>Death</b>			
Pfizer	2	90 – 120	57%
	3	60 – 90	86%

**Vaccine\* effectiveness\*\* against other variants**

Outcome (and vaccine)	Variants of concern			
	Alpha	Beta	Gamma	Delta
<b>Any Infection</b>				
Pfizer	78 – 95%		93%	42 – 93%
Moderna	86 – 100%	96%	95%	52 – 91%
AstraZeneca	62 – 79%		90%	45 – 83%
Johnson & Johnson				3 – 71%
Sinovac			66%	60 – 74%
AstraZeneca followed by Pfizer or Moderna	82 – 91%		96%	88%
<b>Symptomatic infection (reported when data on 'any infection' is limited)</b>				
Pfizer		84 – 88%	84 – 88%	63 – 94%
Moderna			88%	87%
AstraZeneca		10%	65%	61 – 92%
Johnson & Johnson				51%
Novavax	86%	43%		
Sinovac				59%
Covaxin				50%
AstraZeneca followed by Pfizer or Moderna				67 – 79%

Outcome (and vaccine)	Variants of concern			
	Alpha	Beta	Gamma	Delta
<b>Transmission</b>				
Pfizer	70 – 82%			31 – 63% (unvaccinated contact) 10 – 40% (vaccinated contact)
Moderna	88%			62 – 77%
AstraZeneca	58 – 63%			36%
Johnson & Johnson	77%			
AstraZeneca followed by Pfizer or Moderna				86%
<b>Severe disease (may include death in some studies)</b>				
Pfizer	92 – 100%			82 – 98%
Moderna	96%	96%		93 – 100%
AstraZeneca			76%	
Johnson & Johnson		82%		93%
Sinovac				46 – 89%
<b>Death</b>				
Pfizer	91 – 97%			90%
AstraZeneca				91%
Johnson & Johnson				90%
Sinovac			86%	77%

\* This infographic includes evidence about vaccines available in Canada.

\*\* The values represent “range of means” and single values mean the result is derived from a single study.

The COVID-19 Evidence Network to support Decision-making (COVID-END) is supported by an investment from the Government of Canada through the Canadian Institutes of Health Research (CIHR). To help Canadian decision-makers as they respond to unprecedented challenges related to the COVID-19 pandemic, COVID-END in Canada is preparing rapid evidence responses like this one. The opinions, results, and conclusions are those of the evidence-synthesis team that prepared the rapid response, and are independent of the Government of Canada and CIHR. No endorsement by the Government of Canada or CIHR is intended or should be inferred.