Coronavirus Disease 2019 (COVID-19)

What You Need to Know About Viral Vector Vaccines

This fact sheet provides information on the safety and effectiveness of viral vector vaccines. For more information, see Public Health Ontario's COVID-19 Vaccines: Viral Vector-based Vaccines or visit COVID-19 Vaccines webpage.

About viral vector COVID-19 vaccines

- Viral vector vaccines are designed to produce an immune response that protects us against the virus that causes COVID-19.

- The currently authorized COVID-19 viral vector vaccines in Canada are the AstraZeneca Vaxzevria and Janssen (Johnson and Johnson) vaccine; however, they are only available in Ontario under limited circumstances. COVISHIELD was temporarily used in Canada, but is no longer available.

- AstraZeneca Vaxzevria is given as a 2-dose primary vaccine series and Janssen (Johnson and Johnson) is given as a 1-dose primary vaccine series.

How do viral vector vaccines work?

- A viral vector vaccine is a modified, weakened version of a different virus (not the virus that causes COVID-19), called a vector.

- The vaccine works by providing our cells with genetic instructions to produce a copy of a protein that is found on the surface of the COVID-19 virus.

- These viral proteins, known as antigens, are recognized by the body which starts an immune response.

- The vaccine does not give you the virus or cause an infection. After our cells make copies of the protein, they destroy the viral vector from the vaccine.

- The vaccines do not interfere with COVID-19 tests used to look for infection and do not give false positive test results.

Viral vector vaccines are effective

- The viral vector vaccines were authorized by Health Canada after they were shown to be effective and of high quality in clinical trials. The viral vector vaccines were 66% (Janssen) and 82% (AstraZeneca Vaxzevria) effective in preventing COVID-19 disease in clinical trials.

- Viral vector vaccines are highly effective in preventing severe disease, including hospital stays and death from COVID-19.

- A booster dose with an mRNA vaccine is recommended for certain groups, due to reduced effectiveness of the primary series against the Omicron variant, particularly for the viral vector vaccines platforms.

- Research shows that the vaccine may prevent others around you from getting sick with COVID-19.

Like every vaccine, there may be possible side effects

- The most common side effects are pain at the injection site, fatigue and headache.

- Other common side effects can include: fever, chills, muscle pain and joint pain.

- These side effects usually occur within 1-2 days after vaccination and go away within 1-3 days.

Very rare adverse events

- Very rare blood clots (thrombosis) associated with low platelets (thrombocytopenia) have been reported following vaccination with viral vector vaccines. Other rare reactions reported after viral vector vaccines include Guillain Barré Syndrome (GBS) and Capillary Leak Syndrome (CLS).

- On May 11, 2021, Ontario paused the use and administration of first dose of the AstraZeneca Vaxzevria/COVISHIELD COVID-19 vaccine. AstraZeneca Vaxzevria or Janssen (Johnson & Johnson) are only available under limited circumstances for people 18 years and older.

- mRNA vaccines are preferred over viral vector vaccines because of their better effectiveness and safety.

Continue to protect yourself and others

- Vaccination is the most important preventative measure to reduce your risk of severe disease and hospitalization from COVID-19.

- The best way to reduce the spread of the virus is to combine vaccination with other layers of protection such as wearing a mask, staying home when sick, cleaning your hands, physical distancing, improving ventilation, following respiratory etiquette, and following public health guidance.

Learn about the virus

To learn more and access up-to-date information on COVID-19, visit the Ontario Ministry of Health's website: ontario.ca/coronavirus and the Government of Canada's website: Vaccines for COVID-19.

The information in this document is current as of April 8, 2022

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