INFORMATIVE GUIDE ON COVID-19 VACCINES

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All information on this topic can vary at any time. You must obtain the most up-to-date information from the official sources cited before making a decision that affects your health or that of your family members.

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NEW VARIANTS OF VIRUS THAT CAUSES COVID-19

Viruses constantly change through mutation, and new variants of a virus are expected to occur over time. Sometimes new variants emerge and disappear. Other times, new variants emerge and persist.

Multiple variants of the virus that cause COVID-19 are circulating globally:

- The United Kingdom (UK) identified a variant called B.1.1.7 with a large number of mutations in the fall of 2020. This variant spreads more easily and quickly than other variants. In January 2021, experts in the UK reported that this variant may be associated with an increased risk of death compared to other variant viruses, but more studies are needed to confirm this finding. It has since been detected in many countries around the world.
- In South Africa, another variant called B.1.351 emerged independently of B.1.1.7. Originally detected in early October 2020, B.1.351 shares some mutations with B.1.1.7. Cases caused by this variant have been reported in the US at the end of January 2021.
- In Brazil in early January, a variant called P.1 emerged that was first identified in travelers from Brazil, who were tested during routine screening at an airport in Japan. This variant contains a set of additional mutations that may affect its ability to be recognized by antibodies.

These variants seem to spread more easily and quickly than other variants, which may lead to more cases of COVID-19. An increase in the number of cases will put more strain on health care resources, lead to more hospitalizations, and potentially more deaths.

So far, studies suggest that antibodies generated through vaccination with currently authorized vaccines recognize these variants. This is being closely investigated by multiple health authorities and agencies.



TYPES OF VACCINES

All vaccines have the same objective, to train the immune system to fight the coronavirus. However, there are four types of vaccines.

1. Viral Vector

This process injects a less harmful virus which contains the genes for the virus's spike protein. This generates an immune response.

Vaccines of this type include: Oxford-AstraZeneca and Gamaleya.

3. Virus Disabled

A deactivated or weakened part of the virus enters the body. This is the basis of traditional vaccines.

Vaccines of this type: Sinovac / Butantan (Coronavac), Sinopharm, Bharat Biotech (Covaxin).





2. RNA/DNA

This process injects part of the virus's genetic code into the body. The body then produces the coronavirus's spike protein, and thus generates an immune response.

Vaccines of this type: Pfizer-BioNTech and Moderna.





4. Protein-based

This process injects only the components of a virus to enhance the immune response.

Vaccines of this type: Novavax and Sanofi.





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PHASES OF VACCINES

For a vaccine to be approved, it must go through three final phases before it is rolled out to the general population.

Authorized by the FDA Phase 1 Phase 2 Phase 3 Moderna (USA) **Phase 1:** Experimentation begins with humans, usually a sample of about 100 people (adults). Pfizer-BioNTech (DE / USA) Sinovac (CH) Sinofarm / I. Wuhan (CH) Sinofarm / I. Pekín (CH) Oxford-AstraZeneca (GB) Authorized by EMA in E.U. Phase 2: In the second phase, the sample is expanded from 200 to 500 people who are not Novavax (USA) necessarily healthy. Bharat Biotech (IN) CanSino (CN) Janssen (USA) Gamaleya (RUS) Phase 3: In the third phase, thousands of CureVac (DE) volunteers receive the vaccine to detect side Anhui Zhifei Longcom (CN) effects. INOVIO (USA) SpyBiotech (IN) I. Biología Médica (CN) Genexine (KP) Cadila (IN) After that, the company requests U. Osaka (JP) authorization from the I. Pasteur / GSK (FR) health authorities. Phase 1 Phase 2 Phase 3 Limited Approved Abandoned 2 3 38 8 20 24 Vaccines Vaccines Vaccines Vaccines Vaccines Vaccines in expanded in large-scale in early or testing safety approved abandoned and dosage safety trials efficacy tests limited use for full use after trials



WHAT IS AN EMERGENCY USE AUTHORIZATION (EUA)?

An Emergency Use Authorization (EUA) is a mechanism to facilitate the availability and use of medical countermeasures, including vaccines, during public health emergencies, such as the current COVID-19 pandemic. Under an EUA, the FDA may allow the use of unapproved medical products, or unapproved use of approved medical products during an emergency to diagnose, treat, or prevent serious or life-threatening diseases or conditions when certain statutory criteria have been met, given that there are no adequate, approved, and available alternatives. Taking into consideration input from the FDA, manufacturers decide whether and when to submit an EUA request to the FDA.

Once submitted, the FDA will evaluate an EUA request and determine whether the relevant statutory criteria are met, taking into account the totality of the scientific evidence about the vaccine that is available to the FDA.





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COMPARISON AMONG LEADING VACCINES

Name of the vaccine	Manufacturing Country	Technology	Doses Needed	Efficacy	Status
Pfizer-BioNTech-Fosun Pharma		mRNA/DNA	2 doses; 3 weeks apart	95%	 Approved in Bahrain, Saudi Arabia and Switzerland. Emergency use in U.S., E.U., and other countries.
Moderna		mRNA/DNA	2 doses; 4 weeks apart	94.1%	• Emergency use in U.S., U.K., E.U. and other countries.
Sputnik-V / Gamaleya- COVID-Vac		Viral vector	2 doses; 3 weeks apart	91.4%	• Early use in Russia. Emergency use in U.A.E., South Africa, Algeria, Bolivia, Paraguay, Argentina and Venezuela.
ChAdOx1-S nCov-19 vaccine from AstraZeneca-University of Oxford		Viral vector	2 doses; 4 weeks apart	62% to 90%, depending on dosage	• Emergency use in E.U., U.K., India, Ecuador, Morocco, Brazil, Mexico, D.R. and El Salvador.
CanSino	*3	Viral vector	Single dose	Unknown	• Limited use in China (trials being conducted in Pakistan, Russia, Mexico and Chile).
Johnson and Johnson		Viral vector	Single dose	Unknown	• Phase 3 trials.
Vector Institute		Protein-based	2 doses; 3 weeks apart	Unknown	• Early use in Russia.
Sinopharm	*2	Virus Disabled	2 doses; 3 weeks apart	Unknown	• Approved in China, U.A.E., and Bahrain.
Sinovac	*3	Virus Disabled	2 doses; 3 weeks apart	Unknown	• Emergency use in China, Brazil, other countries.
Bharat Biotech	۲	Virus Disabled	2 doses; 4 weeks apart	Unknown	• Emergency use in India.



APPROVED VACCINES IN CANADA AND USA

The two approved vaccines are recommended in Canada and in the United States to protect against COVID-19. They have met the essential safety and efficacy criteria established by the World Health Organization (WHO).

The Pfizer-BioNTech and the Moderna COVID-19 vaccines have been authorized for emergency use by the FDA and Health Canada under an Emergency Use Authorization (EUA) to prevent Coronavirus Disease 2019 (COVID-19) for use in individuals 16 years of age and older. In the US, the emergency use of this product is only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of the medical product under Section 564(b)(1) of the FD&C Act, unless the declaration is terminated or authorization revoked sooner.

In Canada, the Pfizer vaccine is approved for people who are over the age of 16 years, and the Moderna vaccine is approved for people who are over the age of 18 years.



These two vaccines have been proven to be highly effective in protecting against COVID-19.



THE DIFFERENCE BETWEEN APPROVED VACCINES

Unlike conventional vaccines, the Pfizer and Moderna vaccines are the mRNA (Ribonucleic Acid) type, created with the virus's genetic code or pathogen. They are from natural substances, such as proteins. That is, they do **not contain any live virus.**

How do they work?

The mRNA sends a message to cells through a non-particulate lipid envelope. They instruct cells to generate the protein found on the virus's surface that initiates infection and stimulates both the immune response and antibodies' generation.





POSSIBLE SIDE EFFECTS OF THE TWO VACCINES

Both vaccines may cause side effects. Contact your primary care provider if you have any post-injection symptoms.

Possible side effects at the injection site:

- Pain
- Swelling
- Redness

Possible side effects on the rest of the body:



- Chills
- Fatigue
- Headache

PLEASE NOTE

Side effects may appear 1 to 2 days after receiving the vaccine.

For the Moderna vaccine, symptoms are more likely to occur after receiving the second dose.



HOW TO STOP THE SPREAD?

To stop the spread of the pandemic, you must:



Wear a mask



Practice social distancing



Get vaccinated

IMPORTANT

According to the WHO, vaccination against COVID-19 is the safest way to help stop the pandemic and provide protection, especially for those at significant risk of becoming seriously ill. When you get vaccinated, you are protecting yourself while also protecting the people around you.



ADMINISTRATION PROTOCOLS*

The WHO included the vaccine in its emergency use list, which encourages countries to accelerate their regulatory processes to import and administer the vaccine. UNICEF and the Pan American Health Organization have also been working to acquire and distribute the vaccine in developing countries.

In addition to the global, regional and national regulatory procedures, each country carries out a process to decide how and when to administer the vaccine and to whom.

Many countries, including the US and Canada, are using the Pfizer and Moderna vaccines, while other countries have licensed different vaccines. Countries around the globe are working on vaccine administration protocols.





CANADIAN PROTOCOLS*

The government is rolling out a three-phase distribution plan to ensure the administration is prepared to receive, store and administer COVID-19 vaccines as soon as they are available. It focuses first on vulnerable populations, those at greatest risk of COVID-19 and severe illness, and those who care for them.

Phase 1	Phase 2	Phase 3	
High-risk population vaccination (early doses) arly doses will be available for: Residents, staff, essential caregivers (including family caregivers) and other employees in congregate living settings for seniors Health care workers, including hospital employees, staff who work or study in hospitals and health care personnel Adults in First Nations, Métis and Inuit populations Adult recipients of chronic home health care	<section-header><section-header></section-header></section-header>	 Ceneral population immunization People aged 79 to 60, decreasing the age limit by five-years: 79 to 75 years 74 to 70 years 69 to 65 years 64 to 60 years People aged 60 to 16 years who are clinically extremely vulnerable would go first and then the general population from 59 to 18 years 	<section-header><section-header></section-header></section-header>



U.S. PROTOCOLS*

The Centers for Disease Control and Prevention has issued recommendations for who should get the vaccines first, but states established their own criteria

CDC Proposed Phases

Phase 1	Phase 2	Phase 3	For more information
 Phase la "Jumpstart Phase" High-risk health workers First responders Phase lb People of all ages with comorbid and underlying conditions that put them at significantly higher risk Older adults living in congregate or overcrowded settings Phase lc Persons in identified age groups at risk for COVID-19 associated morbidity and mortality not included in Phase 1b 	 K-12 teachers and school staff and child care workers Critical workers in high-risk settings, workers who are in industries essential to the functioning of society and substantially higher risk of exposure People of all ages with comorbid and underlying conditions that put them at moderately higher risk People in homeless shelters or group homes for individuals with disabilities, including serious mental illness, development and intellectual disabilities, and physical disabilities, or in recovery, and staff who work in such settings People in prisons, jails, detention centers, and similar facilities, and staff who work in such settings All older adults not included in Phase 1 	 Young adults Children Workers in industries and occupations important to the functioning of society and at increased risk of exposure not included in Phase 1 or 2 	Click here



FREQUENTLY ASKED QUESTIONS



Are COVID-19 vaccines safe?

All vaccines approved by the FDA & Health Canada have gone through rigorous safety studies and have proved to be highly effective. Additionally, the CDC* has implemented systems that monitor any problems that may arise.



Can the vaccine give you the virus?

No. Since the mRNA vaccine does not use live viruses, the vaccine does not allow the SARS-CoV-2 virus to replicate and can't cause any known disease.



Are there any side effects?

Like many other vaccines, possible side effects are pain at the injection site, fatigue, headache, chills, joint and muscle pain. These symptoms disappear in a short time.



Can it produce an allergic reaction?

There have been some allergic reactions in clinical trials. It is advised to get vaccinated in a place recommended by your physician or that has been approved by the local health authorities in your country of residence.

Could the vaccine cause infertility?

According to clinical studies conducted by experts from the American Association for Reproductive Medicine, the COVID-19 vaccine does not cause infertility.

*Centers for Disease Control and Prevention. Sources: CDC, FDA, WHO and Health Canada



FREQUENTLY ASKED QUESTIONS



If I already had COVID-19, should I get vaccinated anyway?

Yes. COVID-19 reinfection is possible. If you were treated for COVID-19 symptoms with monoclonal antibodies or convalescent plasma, you must wait 90 days to get the COVID-19 vaccine. Talk to your doctor if you are not sure what treatments you received, or if you have additional questions about getting the vaccine.



Can I get vaccinated against COVID-19 while receiving another vaccine?

If you have received the COVID-19 vaccine, wait at least 14 days before getting any other vaccines, including the flu or shingles vaccine. And, if you've had another vaccine before, wait at least 14 days to get the COVID-19 vaccine.



Should I wear a mask and continue with social distancing measures after receiving the vaccine?

Yes, there is no current information available indicating that you should stop using a mask or following the safety protocols to stop the spread.



Does the mRNA vaccine change your DNA?

According to the ABC source, mRNA is a transient carrier of information that does not integrate into human DNA, that is, the vaccine will not change your DNA.



Can pregnant or breastfeeding women get the COVID-19 vaccine?

There is no research on the safety of COVID-19 vaccines in pregnant or breastfeeding women. However, if you are pregnant or breastfeeding and part of a group recommended to get a COVID-19 vaccine, you may choose to get the vaccine. Talk to your health care provider about the risks and benefits.



FREQUENTLY ASKED QUESTIONS



Is there anyone who should not get a COVID-19 vaccine?

There is no COVID-19 vaccine yet for children under age 16. Several companies have begun enrolling children as young as age 12 in COVID-19 vaccine clinical trials. Studies including younger children will begin soon.

Also, COVID-19 vaccination might not be recommended for people who have certain health conditions. Talk to your doctor if you have questions about whether or not you should get the vaccine.



ADDITIONAL RESOURCES



U.S. Food and Drug Administration (2021) COVID-19 Vaccines. https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines



 CDC (2021) COVID-19 Vaccine: Helps protect you from getting COVID-19. https://www.cdc.gov/coronavirus/2019-ncov/vaccines/index.html



WHO (2021) COVID-19 vaccines. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines



• Government of Canada (2021) Vaccines for COVID-19. https://www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19/vaccines.html



INFORMATION SOURCES

- ABC (2020) Vacunas de coronavirus: cuántas hay, cuando llegarán, y cuáles son mejores. Taken from: https://www.abc.es/sociedad/abci-vacuna-covid-ensayo-nsv-202011201216_noticia.html?ref=https:%2F%-2Fwww.google.com%2F
- CDC (2021) Diferentes vacunas contra el COVID-19. Taken from: https://espanol.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines.html
- BBC News (2021) Coronavirus: el gráfico que muestra cómo funcionan 4 tipos de vacunas para combatir la covid-19. Taken from: https://www.bbc.com/mundo/noticias-55587877
- Nature (2020) The race for coronavirus vaccines. Taken from: https://www.nature.com/articles/d41586-020-01221-y
- New York Times (2021) Coronavirus Vaccine Tracker. Taken from: https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html
- WHO (2021) Guidance document. Taken from: https://extranet.who.int/pqweb/sites/default/files/documents/Status_COVID_VAX.pdf
- U.S. Food and Drug Administration (2021) COVID-19 Vaccines. Taken from: https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines
- Government of Canada (2021) Health Canada. Taken from: https://www.canada.ca/en/health-canada.html