

THE COVID-19 VACCINE

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Everything you need to know about the battle to end the pandemic

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Coronavirus or better known as Covid-19 was declared as a pandemic by the World Health Organization (WHO) in early March 2020. This pandemic has got the whole world struggling for civilisation and livelihood.

Today, with the trust we have in science, researchers from all over the world have joined hands to find an effective vaccine to fight against the deadly Covid-19. Now that the vaccine is readily available to the public, many seemed concerned about the vaccine and its consequences on their health.

In light of the countless concerns over the Covid-19 vaccine as it is now rolled out in our

country (Malaysia), we've approached Associate Professor of Kulliyah of Pharmacy, Pharmacy Practice Dept, International Islamic University Malaysia as well as Chairman of the Malaysian Pharmaceutical Society (Immunisation Advocacy Chapter), Dr. Mohamad Haniki Bin Nik Mohamed to address some common questions about the vaccine and its effectiveness towards the virus.



Firstly, could you share with us how does the Covid-19 vaccine work?

There are several types of Covid-19 vaccines:

mRNA

Firstly, there's the Nucleic acid vaccine (proteins that direct production of other proteins): Messenger RNA also called mRNA vaccines or DNA-Moderna, Pfizer/BioNTech.

mRNA vaccines have strands of genetic material called mRNA inside a special coating. That coating protects the mRNA from enzymes in the body that would otherwise break it down. mRNA can most easily be described as instructions for the cell on how to make a piece of the 'spike protein' that is unique to SARS-CoV-2. Since only part of the protein is made, it does not do any harm to the person vaccinated but it is antigenic.

After the piece of the spike protein is made, the cell breaks down the mRNA strand and disposes of them using enzymes in the cell. It is important to note that the mRNA strand never enters the cell's nucleus or affects genetic material. This information helps counter misinformation about how mRNA vaccines alter or modify someone's genetic makeup.

Once displayed on the cell surface, the protein or antigen causes the immune system to begin producing antibodies and activating T-cells to fight off what it thinks is an infection. These antibodies are specific to the SARS-CoV-2 virus, which means the immune system is primed to protect against future infection.

Viral-vector vaccines

Viral vector-based vaccines use the body's own cells to produce antigens. They do this by using a modified virus (the vector) to deliver the genetic code for the antigen, which then triggers an immune response. The vaccine mimics what happens during natural infection with certain pathogens — especially viruses. This has the advantage of triggering a strong cellular immune response by T cells as well as the production of antibodies by B cells.





Why is it important to consider getting the Covid-19 vaccine?



Covid-19 is a serious condition which can lead to life-threatening complications. At the moment, there's only a few evidence that shows the vaccine may be effective in preventing Covid-19. Experts say that for the vaccination to work, at least 70 percent of the entire population should receive the two-dose shots for maximum protection.

Quote: Experts Say That For The Vaccination To Work, At Least Percent Of The Entire Population Should Receive The Two-dose Shots For Maximum Protection.

Who can take the vaccine?



Based on the current available data, Pfizer/BioNTech Covid-19 vaccine can be given to individuals 16 years of age and older, unless contraindicated. However, the Covid-19 vaccine Moderna, was assessed in individuals 18 years of age and older, including those 65 years of age and above.

What are some of the contraindications of the vaccines?



Contraindications to Covid-19 vaccines are as follows:

Moderna

- Severe allergic reaction such as anaphylaxis (severe, potentially life-threatening allergic reaction) after a previous dose of an mRNA Covid-19 vaccine or any of its components.
- Immediate allergic reaction of any severity to a previous dose of an mRNA Covid-19 vaccine or any of its components (including polyethylene glycol [PEG]).
- Immediate allergic reaction of any severity to polysorbate (due to potential cross-reactive hypersensitivity with the vaccine ingredient PEG).

Pfizer/BioNTech

- Hypersensitivity to the active substance or to any of the excipients.
- Hypersensitivity to the active substance or to any of the excipients. A positive IgG test (i.e., having been exposed to the disease) is not an exclusion criterion for vaccination; available data suggest that previously infected individuals can be at risk of COVID-19 reinfection and could benefit from vaccination.
- The administration of COVID-19 vaccines should be postponed in individuals suffering from acute severe febrile illness.
- Individuals with bleeding disorders may receive a COVID-19 vaccine if considered safe to do so by a physician familiar with the individual's bleeding risk.





Is it safe for pregnant women and children to receive the vaccine?

There have been no specific studies in these groups for Pfizer/BioNTech vaccine. However, it is of utmost importance for patients to discuss the potential benefits and risks of vaccination with their healthcare provider.

Adolescents of the ages 16 to 17 years were included in the efficacy analysis and one confirmed covid-19 case was reported in this age group. The Food and Drug Administration (FDA) has determined that it is biologically reasonable to extrapolate in ages 16 to 17 years as it would be similar to safety and effectiveness in younger adults.

The safety and efficacy of the Moderna vaccine in children and adolescents less than 18 years of age have not yet been established. Currently there is no data available on this matter.

As for pregnant women, there is limited experience with use of Covid-19 vaccine Moderna. Animal studies cannot indicate direct or indirect harmful effects with respect to pregnancy, embryo development, parturition or postnatal development. Administration of Covid-19 vaccine Moderna during pregnancy should only be considered when the potential benefits outweigh any potential risks for the mother and foetus.

How will we know if a Covid-19 vaccine is safe and effective?

Manufacturers have submitted pharmacovigilance plans to regulators to monitor the safety of Covid-19 vaccines. This includes a plan to complete long term safety follow-up for participants enrolled in ongoing clinical trials as well as other activities aimed at monitoring the safety profile of the vaccines and ensuring that any safety concerns are identified and evaluated in a timely manner.

How long will the Covid-19 vaccine be effective for?

At the moment, there is no available data to show us the duration of protection that the vaccine will provide.





Are there any side effects from the vaccine?

The most common side effects are:

- Tenderness, swelling and/or redness at the injection site
- Fatigue
- Headache
- Muscle ache
- Fever or high body temperature above 37.8 celsius (°C)

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Will the vaccine work if a person was tested positive for the coronavirus?

Among all study participants given the Pfizer-BioNTech Covid-19 vaccine, three percent had shown evidence of infection prior to vaccination, and among participants with evidence of infection prior to vaccination, more confirmed Covid-19 cases occurred in the placebo group compared with the vaccine group. While relatively few confirmed Covid-19 cases occurred overall among participants with evidence of infection prior to vaccination, available data suggest that previously infected individuals can be at risk of Covid-19, for example, reinfection and could benefit from vaccination.



When should a person seek medical help after receiving the vaccine?

Severe allergic reactions, including anaphylaxis, have been reported following administration of Covid-19 vaccine. Get urgent medical attention if any of the following signs and symptoms of an allergic reaction occurs:

- Feeling faint or light-headed
- Changes in your heartbeat
- Shortness of breath
- Wheezing
- Swelling of your lips, face, or throat
- Hives or rashes
- Nausea or vomiting
- Stomach pain.

Note: A severe allergic reaction would usually occur within a few minutes to one hour after getting a dose of the vaccine. For this reason, vaccination providers shall ask patients to stay at the place where they received their vaccine for monitoring after vaccination.

Editor's Note: Information provided is accurate as of time of writing.

