**COVID 19 and the post vaccination scenario**

[**Dr. Zareen Fatima, Dr. Khalid Munir and Prof. Dr. Muhammad Akram Muneer**](https://nation.com.pk/Columnist/dr-zareen-fatima-dr-khalid-munir-and-prof-dr-muhammad-akram-muneer)

February 08, 2021

Severe Acute Respiratory Syndrome virus-2 (SARS-CoV-2) continues to affect the human population across the globe. It has spread to almost all the countries of the world. The pandemic has not only disrupted public health but also the global economy and social order. Many are struggling hard to control this highly infectious disease, which has already infected more than 98 million people and caused over 2.1 million deaths worldwide.

Ninety-six million people have been tested positive for SARS CoV-2. Given how many susceptible bodies SARS CoV-2 has right now to mutate in, its variants are posing a worry among the biomedical scientists. Many local variants are also being reported from different parts of the world. With the spread of three major variants, speculations are high as to whether we will need updated vaccines each year. The common flu caused by the Influenza viruses is a good example of such vaccines as those are updated every season upon the identification of variants circulating in the human population. This happens because Influenza virus mutates quite often and acquires changes at a faster rate. However, in the case of SARS CoV-2, the more time and space a virus gets, the more it mutates. Hence we have to make sure that we stop the spread of the virus before novel mutations pop up and make things difficult for us in controlling, preventing and treating the infections caused by it.

[Bitcoin hits a new record, increasing up to $48,481](https://nation.com.pk/12-Feb-2021/bitcoin-hits-a-new-record-increasing-up-to-dollar-48-481)

The South African variant has become alarming in escaping the neutralisation effect of antibodies. Neutralisation is the blocking of the virus through antibodies so that they cannot attack the cells. Recent laboratory setting studies have provided evidence that antibodies from previous infection have less of an effect on the South African variant. The World Health Organisation has defined a threshold of an eight-fold decrease in antibody neutralisation to update antigen in the influenza virus vaccines. Although influenza and SARS CoV-2 viruses are different, WHO’s study emphasises the need to focus on defining the neutralisation threshold for updating the SARS CoV-2 antigen in COVID-19 vaccines. However, more detailed studies are required to confirm the use of updated antigen in COVID-19 vaccines every season.

All of these studies have worked only on specific antibodies while in real life, our body’s immune system generates different types of antibodies, cells and chemicals which collectively attack the invading virus. Scientists also have to monitor if the antibodies, due to vaccine and natural infection, have the same protein structure. As proteins, antibodies have their own way of folding. Hence monitoring how closely the structures of naturally and artificially produced antibodies may provide a great deal of insight on their effectiveness.

[Lost in love](https://nation.com.pk/12-Feb-2021/lost-in-love)

This brings us to another potent question of how long the artificial immunity will remain active. People who had survived milder SARS-CoV-2 infections may still be vulnerable to infection with a new variant. The Pfizer-BioNTech vaccine has data for two months only. The data of a recent study suggest that immunity to SARS-CoV-2 may remain even after eight months post-infection. The study concluded that free floating antibodies and B-cells remained in favourable numbers but T-cells declined over the months. This study is in contrast to the previous study, which detailed that immune response declined in three months after infection with SARS CoV-2. Scientists know that the immunity against other coronaviruses decreases with time. Whether this is true with SARS CoV-2 is still to be confirmed. It may be that the response is less in the beginning and may enhance with time.

With a risk of waning immunity due to declining circulating antibodies and new variants, researchers still have to confirm whether reinfections are a real threat. The number of reinfections compared to overall infections is quite low, yet it is not completely out of the picture. These low numbers of reinfections could be due to a lack of diagnostic facilities, diminished immunity against new variants, and less information available. Reports are coming out from different countries. South Africa and her neighbouring countries have reported a higher number of cases in the current wave than the previous wave of SARS CoV-2 infection. Scientists have conflicting opinions on whether or not this current surge is due to the new variant. In any case, given how SARS CoV-2 is behaving, we cannot rule out the drastic effects of new variants on populations.

[Pakistan is secure for sports: Dr Firdous Ashiq](https://nation.com.pk/12-Feb-2021/pakistan-is-secure-for-sports-dr-firdous-ashiq)

Reports from Norway, India, UK, USA, Sweden, and Israel are coming with mild to severe reactions after people receiving vaccine shots. The common reactions to any vaccine can be stiffness of the muscle at the site of injection, tiredness, pain, nausea, and fever. While these do not require medical attention, anaphylactic reactions need immediate medical care because otherwise, they can lead to death. These are allergic reactions to substances with life threatening symptoms of shortness of breath, rashes, nausea, swelling, and require shots of epinephrine and steroids to relieve the symptoms. Researchers have noticed these anaphylactic reactions but such reactions have been overwhelmingly small in numbers. In these cases, the reactions were almost immediately recognised by the healthcare providers. Both Pfizer and Moderna vaccines have polyethylene glycol as an inactive ingredient and some people may develop allergy to it. What’s important is to read the composition of the vaccine shots and discuss with your medical doctors the risk in detail. Pakistan has given emergency use authorisation to AstraZeneca and Sinopharm vaccines. The ingredients can be read on the internet link or leaflets provided.

[Ehsaas programme survey to be completed by the end of June: Dr Sania](https://nation.com.pk/11-Feb-2021/ehsaas-programme-survey-to-be-completed-by-the-end-of-june-dr-sania)

A lot has been done on the science behind Covid-19 vaccines, but what still remains a question of great worry is their mass production, logistics behind the distribution of vaccines, and quick immunisation drives. It is extremely important to immunise more than 60 to 70 percent of the population so that the virus does not get enough time to make mutations. However this calculated minimum can be misleading as the vaccines’ efficacy is in range of 50-95 percent. Hence, there is more of a need of achieving immunisation to bridge this gap.

Countries must make sure to give both vaccination shots in 3 to 4 weeks’ time period. Herd immunity is important to acquire but it will only be achieved by rapid vaccinations. Wealthier countries like the US, Canada, UK and Australia have pre-booked millions of vaccine doses, which make it difficult for poorer countries to get them. We will unfortunately keep seeing reports of new cases, infection surge waves, lockdowns, and deaths from SARS CoV-2 until a significant population of the world is vaccinated.

['Pakistan will continue to support Kashmiris,' says top Military officials](https://nation.com.pk/11-Feb-2021/pakistan-will-continue-to-support-kashmiris-says-top-military-officials)

Considering all the concerns that may arise in future, the scientists around the world strongly support the massive vaccination campaigns to overcome this infectious pathogen. People have to keep following standard operating procedures (SOPs) even while vaccinated because it takes time to build immunity. For Pfizer-BioNTech Covid-19 vaccine, the required immunity develops in 21 days after the second shot. Before that, a person can get infected with the virus and may transmit it to other people. That is why reports from Israel are coming where a few hundreds of people got infected after being vaccinated.

From the initial data on vaccines, it is still not clear whether the vaccines only reduce the chances of disease to 50 or 95 percent or they completely protect the body against new infections. If infections keep happening then we will have to strictly follow SOPs because the moment our immunity decreases, the virus will avail this chance to cause disease of different magnitudes. Due to advancements in research, a hopeful scenario is the capacity to quickly update the vaccine if needed. Keeping all the information in sight, we strongly advise our readers to get vaccinated and keep following SOPs to minimise the spread of SARS CoV-2. We have seen a whole year of lockdowns, closed businesses, reduced resources, illness and deaths. To keep our lives running, we all have to make sure that we keep at least six feet distance among each other, avoid social gatherings or going to crowded places, stay home as much as possible, continue with hand washing activity, always wear masks properly and practice the highest possible level of personal hygiene measures.