

# HOW INDIA CAN FIGHT VACCINE HESITANCY

Relevant for: Developmental Issues | Topic: Health & Sanitation and related issues

**WASHINGTON DC** : The world focused on developing covid-19 vaccines in 2020. For most of the year, there were no guarantees that safe and effective vaccines would even be available. At that time, the efficacy bar was set to at least 50% effective in stopping symptomatic covid-19. Many vaccines available now exceed this threshold significantly with efficacy in preventing disease above 90%, but some people are less positive about taking a covid-19 vaccine today than they were in mid-2020.

The World Health Organization (WHO) defines vaccine hesitancy as “delay in acceptance or refusal of vaccines despite availability of vaccination services.” WHO has named it as a top priority in global health.

While children are immunized, routine vaccinations of adults are not common in India and in many parts of Asia. Although the annual flu shot is common and recommended for all each year in many western countries, very few people get them in India.

The only common vaccinations that my friends or I ever got as adults were to prevent tetanus after accidental injuries or rabies for those who were bitten by stray dogs. In both cases, the pain and cost of getting vaccinated is thought to be well worth bearing compared to the risk of this disease, which is often fatal in both cases.

All safety is relative. The benefit of a vaccine must be compared to the risk of the disease. As a vaccine expert pointed out the challenge: “We never hear about the aeroplanes that land safely because that’s not news.” It is important to spell out the number of deaths that occur and the conditions—but humans are not good at balancing risk.

What is lost in many appraisals is that vaccines are the single-greatest contributor to the quality of modern life. Vaccines are a boon to modern medicine. Smallpox had been causing disease in humans for over 3,000 years. It resulted in 300 million deaths in just the last century prior to eradication through vaccination. Thanks to vaccination, polio has also been eliminated from most parts of the world.

But polio persists stubbornly in three countries—Pakistan, Afghanistan, and Nigeria. In Pakistan, attacks on healthcare workers have slowed efforts.

Nevertheless, many people I spoke to said they would risk getting sick from covid-19 instead of getting vaccinated right now. A survey conducted in the US in mid-2020 by the Associated Press and the University of Chicago found that half of surveyed would not accept a vaccine once one had become available. Of these people, a third were hesitant about taking a vaccine in the initial months while 20% rejected a vaccine outright.

In western countries, vaccine hesitancy tends to rise among people of lower socioeconomic status. This is partly attributable to poor outreach to these communities and memories of medical experimentation among poor individuals. Exploitative historical practices such as the Tuskegee syphilis study, in which Black participants were not given treatment for their disease, has generated mistrust in treatments.

Some people will not accept vaccines for non-scientific reasons. Ironically, it is in western countries where vaccines have prolonged and improved lives that the “anti-vaxxer” movement

has the most steam. A highly-quoted paper published in *The Lancet* that turned parents against the measles, mumps, and rubella vaccine was retracted 12 years after publication. More recent conspiracy theories against vaccines suggest implanted microchips will allow those who are vaccinated to be tracked over time. This has no basis in reality, but this has propelled paranoia.

## **The India case**

India fares better on vaccine uptake than many other countries. In October, Jeffrey Lazarus published a paper in *Nature Medicine* in which he found that around three-quarters of Indians answered that they would take a covid-19 vaccine if a safe and effective one were available.

Attitudes to covid-19 vaccines vary greatly, and they have been changing over time. The daily number of reported infections and deaths peaked in India in September. Since then, infections and deaths have consistently declined. Antibody tests in specific parts of the country like Delhi seem to show that as much as 60% of the population may have antibodies to SARS-CoV-2, prompting many doctors to speculate that these areas have reached the herd immunity threshold.

This has led some to indicate that vaccination is unnecessary. But the protective ability of the antibodies in sero-surveys is not known, since not all antibodies detected by these tests are effective in preventing reinfections. It may also be possible that some of these antibodies have been generated from infection with other viruses in the past. A vaccine designed for SARS-CoV-2 would be more specific in preventing disease.

The idea that covid-19 vaccines were rushed has fed anxiety that the vaccines were not developed properly. Post emergency-approval surveillance has led to some adverse effects being detected, but to date no causative relation has been established.

Lacking from communications of covid-19 vaccines is how they compare against vaccines for other diseases. The RNA vaccines that became available in many countries in late 2020, for example, are among the best created, and similar in efficacy to the vaccines for measles and chickenpox. These vaccines are nearly 100% effective in preventing death from covid-19.

A recently-published article in *The New York Times* suggested that many experts downplayed the effectiveness of vaccines, so that those who are vaccinated don't embrace risky behaviour. However, this rationale was used in downplaying the benefits of masks last year and ended up causing more confusion on whether they stopped transmission of the virus or not.

India makes over 60% of the world's vaccines. Serum Institute of India is the world's largest vaccine maker. Undoubtedly, Indian manufacturers are going to play a critical role in ending the pandemic elsewhere in the world. But there appears to be a crisis in confidence among many people who see only two vaccine options now—Covaxin by Bharat Biotech in collaboration with the Indian Council of Medical Research and Covishield by Serum Institute of India licensed from University of Oxford and AstraZeneca.

## **Tackling many concerns**

Vaccines go through three trials in humans. The first two trials test for safety and immune responses in a small number of people. Often these trials are combined. The third set of trials enrolls a diverse population and examines safety and efficacy.

Some experts have expressed concerns because Covaxin was approved for emergency use even before data from the phase III trials were released. While there have been errors with

dosing trials of the Covishield, given a half dose, the efficacy may approach 90%: more data is necessary to confirm the dosing regimen. Other experts have called for the use of data from earlier trials as a "surrogate" for efficacy while new data is generated.

What is lost in these discussions is these are not the only two vaccines that India is making. At least eight other vaccines are in development in India right now. For example, Bharat Biotech has a one-dose nasal vaccine that will be entering human trials. Serum Institute of India is working with Novavax to develop another vaccine as well.

A subset of vaccine non-adopters may be confused with the information shared: experts have been pointing out the need to wear masks after being vaccinated, without spelling out clearly that this is because the degree of prevention of infection is unknown. What the public has taken this to wrongly imply is that the vaccine is not effective.

Another misconception that has been going rounds is that immunity after vaccination will last only six months. SARS and MERS antibodies were detectable from recovered patients 1-2 years later. There have been multiple studies that have detected antibodies and T-cells six months after SARS-CoV-2 infection. In addition, there is another study by Shane Crotty and colleagues that predicts that immunity might last a year based on the persistence of antibodies and T-cells.

Another widely held viewpoint is there is no point in getting a vaccine for a disease in which 99.6% of people recover. Even if the infection fatality rate in India does turn out to be around 0.4% that would still be at least ten times greater than that of the seasonal flu. Here also many people lack a reference point to other infectious diseases. Over 98% of those who are infected with polio also have mild or no symptoms. But it is the severity of polio in the others that makes eradicating the virus from humans a necessary public health goal.

Yet another group of people who may choose to defer vaccination are those who have tested positive for SARS-CoV-2 infection and have suffered from covid-19. While it is highly likely that they have some immunity from that infection that might prevent reinfection, the 'amount' of protection and its duration they have still is unknown.

Immunity from vaccination often mirrors that following a natural infection. But super-immunity from vaccination of an effective vaccine can also result. In Nature Medicine, Dennis Burton and Eric Topol note that vaccines "against covid-19 with immune responses and protection superior to that achieved through natural infection is an achievable goal". Immunity after vaccination might be equal or even greater than the immunity that results from infection.

Some vaccine non-adopters, including those who are pregnant, elderly, or have severe allergic reactions to other vaccines, have justifiable concerns that need to be addressed prior to getting a covid-19 vaccine. There are no vaccines approved for small children right now either. Those concerns will need to be addressed this year.

## **The way ahead**

Vaccine acceptance requires transparency in processes and effective communication. Many studies have shown that it also matters who is communicating information as much as what is being said. When trusted scientists make statements, it increases confidence. When politicians guarantee that a vaccine is safe and effective, in our hyperpolarized world, these comments are met with scepticism.

A team of healthcare experts can help guide vaccine promotion efforts. While the need to dispel rumours and misinformation is important, the message cannot be solely negative or instill a fear

of punitive actions. Representatives from the entire political spectrum would dispel many concerns. Hearing that our own doctors have been vaccinated encourages us to get vaccinated as well.

What about paying people? Research has shown that offering compensation for vaccines or vaccine-related health issues is one of the least effective ways to increase acceptance. Psychologically, it leads people to suspect something is wrong, and usually backfires.

Getting a vaccine approved is a scientific and medical problem. Getting a vaccine manufactured at scale is an economic problem. But getting people to agree to get vaccinated involves social science. The most effective strategies against vaccine hesitancy are to increase vaccine knowledge and awareness, improve access to vaccines, and to broadcast the stories of those who have taken the vaccines.

Making covid-19 vaccines easily accessible and free or subsidized reduces the barrier for vaccination. If vaccines are available at local pharmacies and primary healthcare centres then it becomes easier to be vaccinated. The availability of vaccines that do not require extensive cold storage also helps in this respect. India's plan to deploy the vast infrastructure involved in elections seems to be a step in the right direction.

It is understandable that after the disruption of 2020, many people are keen to move on with their lives. Many people are taking a wait-and-see approach right now until other people they know have been vaccinated, or they have more approved vaccines to choose from. With vaccines for a new disease like covid-19, it will take people time before they are comfortable. These people should be encouraged but not threatened or forced via mandates that undermine confidence.

Ultimately, it is widespread adoption of vaccines that will allow global resumption of pre-pandemic life.

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