

## What a coronavirus vaccine means for Lebanon

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BEIRUT: After the announcement last week of a successful vaccine in the global fight against the coronavirus pandemic, Lebanon's Health Ministry was quick to announce the acquisition of the Pfizer and BioNTech vaccine. Caretaker Health Minister Hamad Hasan said Lebanon would "be one of the first countries to benefit from the Pfizer vaccine." He added that an agreement had been signed with Pfizer to secure enough vaccines to cover 15 percent of citizens. "Lebanon will receive a vaccine with Pfizer if it is approved in its final form within a period not later than mid-February."

The speed and success of the trials, run in the US by Pfizer, a biopharmaceutical company, alongside BioNTech, a German pharmaceutical company, placed the team first past the post in the race to find an effective vaccine against the coronavirus. The results of the study, which included over 43,000 participants, showed a 95 percent efficacy rate against coronavirus infection.

Lebanon has been struggling to stem persistent rise in coronavirus infections with daily cases teetering close to 2,000 in recent weeks. The country on average has been recording some 11,000 coronavirus infections each week before mid-November, according to the Health Ministry. Moreover, the number of deaths reached the grim milestone of 1,000 Sunday, just as Lebanon withdrew from a two-week country-wide lockdown.

A vaccine is now determined to be the main solution to end the global health pandemic, which officially began when the WHO declared the coronavirus to have reached pandemic levels in March. This was three months after the first case of COVID-19 was recorded in China in December 2019.

For Lebanon, the coronavirus pandemic has served to exacerbate the multitude of issues facing the country. It has been reeling from a political and economic crisis that has plunged over half the population into poverty. In Beirut, businesses and homes have fallen further into disarray following the explosion in the city's port in August that left 300,000 homeless and damaged thousands of business establishments. The economic and social impact of the health crisis has exemplified the country's depth of despair and overwhelmed an already beleaguered health sector.

Therefore, coronavirus vaccination for the Lebanese is a chance for life to return to some sense of normality. Firass Abiad, head of Rafik Hariri Hospital in Beirut, told The Daily Star he welcomed the news: "We have a light at the end of the tunnel, and this light appears to be getting brighter."

Pfizer is not the only coronavirus vaccine that the Health Ministry has acquired. The government has also signed with Covax, a scheme established by the WHO and public-private initiatives to ensure global equitable access to a vaccine. It will administer a variety of vaccines; including the Oxford-AstraZeneca jab, which has yielded different efficacy results. The deal with Covax secures a quantity for 20 percent of the most vulnerable Lebanese, according to Hasan.

But the variety of vaccines now on the market has called into question whether Pfizer is the most suitable for a country such as Lebanon. Abiad explained that the Pfizer product raises "a lot of logistical challenges" regarding storage, cost and distribution around the country. "How are we going to deliver it to areas that are less urban? All of this needs working out," he added.

The Pfizer vaccine comes with complications. Firstly, it has to be stored in ultra-low-temperature freezers controlled to minus 70 degrees Celsius. This is an obstacle for even the most sophisticated hospitals in the Western world. Abiad revealed that at Rafik Hariri Hospital they had two of the recommended ultra-low temperature freezers. However, he said this did not solve the issue: "In Beirut, I am sure we have these refrigerators but what happens outside of the capital? ... Those refrigerators are old, how will they be incorporated in a public plan? Who will be responsible?"

Hasan has said that "a technical committee has been formed to administer the vaccine" with eight storage centers to be approved in the governorates, but has yet to disclose any further details.

Speaking to The Daily Star, Dr. Ahmad Samadi, the director of Sidon Governmental Hospital, confided that they had heard nothing from the Health Ministry regarding the vaccines. But he said the public hospital had suitable storage facilities for the Pfizer vaccine: one ultra-low-temperature freezer. Samadi agreed with Abiad that there were more freezers in Beirut. He explained that during the 2009 swine flu outbreak the World Health Organization provided Lebanon with minus 70 degree Celsius freezers for storage of PCR samples of the H1N1 virus, also known as swine flu. Another concern with the Pfizer vaccine is the expense. It reportedly will cost around \$19.50 a dose; the company has not yet placed an official price tag. But each patient requires two doses, making the final amount around \$39. With the ministry securing as many as 2 million doses, Hasan has given assurances that the government's financial woes will not impact acquiring a vaccine.

"There is no financial problem that will prevent Lebanon from obtaining the vaccine, given the possibility of the amount transferred from the World Bank loan to cover the expenses facing the corona epidemic."

But it is not yet clear whether the patient or the government will bear the brunt of the cost. In Lebanon, vaccines are commonly administered at pharmacies with the patient paying for the dosage. For example, the winter flu vaccine this year costs between LL16,000 and LL21,000, according to Samadi. But the coronavirus vaccine is novel, and Abiad has predicted that most of the population will likely have to pay for the vaccine.

The ministry has made clear that priority will be given to front line health care workers as well as elderly and vulnerable members of the population to receive the vaccine. It will be a logistical challenge to ensure the vaccine reaches those who need it most, and Lebanon's agreement with Covax is designed for those vulnerable Lebanese.

But Elias Rahal, an associate professor of Virology and Immunology at the American University of Beirut, raised the point that there are many unaccounted for in Lebanon who will need the jab. The total population figure for Lebanon is disputed; the government's Central Administration of Statistics estimates the population in 2018 to have been 4.842 million people. However, this figure excludes people living in nonresidential units, such as Army barracks, refugee camps and informal settlements. Meanwhile, the World Bank in 2019 estimated Lebanon's population to stand at 6.85 million. Rahal explained the difficulties of accounting for refugees, and also mentioned that Lebanon had not had an official population census conducted for decades. This creates administrative issues; Rahal suggested looking at election schedules and registries for recent figures. But he admitted that still "does not count the young population or refugees, or those not registered for elections."

More logistical concerns arise in administering the Pfizer vaccine, Abiad revealed. It has to be injected in two separate doses, spaced four weeks apart. He expressed concern over how to guarantee those who receive the first jab will return for the second dose, and to ensure it is the same brand of the vaccine.

For Rahal, the Oxford AstraZeneca developed jab is a more reassuring option, regarding the makeup of the vaccine. "It resembles vaccines we have used in the past" he explained. Furthermore, it has features more accessible to a country such as Lebanon than the Pfizer dose. It requires storage at regular fridge temperatures of 2 to 8 degrees Celsius, and will reportedly be sold at around \$3 to \$4 a dose. However, its preliminary phase three results show it to be between 62 to 90 percent effective, which is less than Pfizer.

The most recent vaccine to announce success is Moderna, a US biotechnology company which Monday revealed that its vaccine trials had a 94.1 percent success rate in preventing coronavirus infection. This is potentially encouraging news for Lebanon's Health Ministry, as Hasan revealed ambitions to acquire vaccines from Moderna: "The ministry is seeking to contact Moderna, especially since its founders are of Lebanese origin."

The successful development of vaccines has brought strength to Lebanon's battle against the coronavirus and has garnered hope for 2021. But Abiad stressed that the Lebanese people should not read it as an opportunity to relax.

"In my opinion, now that we have these vaccines coming, it becomes even more imperative that we take all the measures not to get the virus because we can now get immunity in a safer way."