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Editorial

The COVID Vaccine Challenges Ahead in Future

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EDITORIAL NOTE

As positive results emerge eventually, researchers must help the planet to deal with vaccine hesitancy, supply logistics and pricing. Large clinical trials of four vaccine candidates are showing remarkable promise, with three exceeding 90% efficacies an unexpectedly high rate according to results released so far. None reported worrying safety signals and one has shown promise in older adults, a demographic that's particularly susceptible to SARS-CoV-2 but which sometimes responds less well to vaccines.

Early studies had shown that these candidate vaccines could stimulate an immune response. The latest trials show that this immune reaction can protect people against COVID-19 a serious achievement. Vaccine development is fraught with possibilities for failure, and even the foremost ardent optimist won't have expected to possess a highly effective vaccine against a replacement virus less than a year after its genome was sequenced.

But there is still a vast amount of work for researchers and clinicians to do. First, they need to determine how well the vaccines work in people who are at high risk of COVID-19, including older individuals, people with obesity and those with diabetes. Second, it isn't clear how well some of the vaccines protect against severe COVID-19. Third, it is also not clear to what extent the vaccines prevent those who have been vaccinated from passing the virus on to others.

At the same time, researchers and policymakers must consider how to deal with challenges not related to the vaccine candidates themselves. These include vaccine hesitancy; weariness with current public-health restrictions; and the staggering logistics of vaccinating the world population. Although the finish line seems to be in view, there is still much difficult terrain to cross.

Some people are understandably concerned that the speed of both scientific review and vaccine regulation could compromise safety despite vaccine developers' and regulators' assurances to the contrary. To build confidence in vaccination, it is important that regulators, companies and their research partners keep promises they need made to make sure transparency, publish data and have interaction with open discussion of those data as they arrive.

The US Food and Drug Administration, for example, has pledged to hold a public meeting of its external advisers in early December to discuss the data before issuing an emergency use authorization to distribute a vaccine. This kind of transparency and therefore the option for open airing of concerns about data, should there be any is far needed. It stands in contrast to the agency's earlier, opaque granting of authorizations for COVID-19 treatments.

Most vaccine teams and drug regulators have stated their commitment to data transparency. But much of what we all know about the newest vaccine trials has been communicated through press releases and media interviews, instead of through research papers that are subject to independent peer review.

Such speed of communication is necessary in an emergency. But more-complete data should not be held back, and the teams involved must be prepared to provide access to all relevant data as soon as this is practically possible, to allow others to scrutinize their findings and test their claims. It is important that companies continue to release their data as analyses are completed, and release preprint papers of completed studies, so that the work can be discussed quickly.

Regulators should also share their data and analyses with regulatory bodies in other countries, to hurry up approval decisions round the world. And regulators and vaccine makers must remember that vaccines are going to be less effective if people refuse inoculation due to vaccine hesitancy.

It is also crucial that the present public-health measures are not relaxed. The coming season in some countries could trigger outbreaks as people rush to ascertain long-missed family and friends. Vigilance remains important maybe even more so as people see a welcome light at the top of the pandemic tunnel.

Vaccine distribution poses another daunting challenge, and is amid questions like what proportion it will cost and who can pay for it. One of the vaccines that have shown success in late-stage trials was developed by researchers at the University of Oxford, UK, and therefore the pharmaceutical firm AstraZeneca in Cambridge, UK. This vaccine can be stored in a normal refrigerator, which makes rapid distribution more feasible than it would be for the vaccine developed by Pfizer in New York City and BioNTech in Mainz, Germany which might be more effective than the Oxford vaccine, but needs to be stored at temperatures below -70°C.

Importantly, AstraZeneca and Oxford have also pledged to supply

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their vaccine at cost price to all or any during the pandemic, and to take care of this price for low- and middle-income countries after the pandemic, when a vaccine will still be needed just in case of future outbreaks. But, as Nature went to press, neither Pfizer nor Moderna, a drug company in Cambridge, Massachusetts, which has a similarly promising vaccine candidate, had committed to keeping prices down once the current pandemic is over. They need to change this stance.

A number of nations most of them wealthy have already pre-ordered nearly four billion vaccine doses and have options for an extra 5 billion, at the present prices. COVAX, a worldwide alliance seeking to make sure that low- and middle-income countries get adequate vaccine provision, has been ready to secure vaccines for less than around 250 million people far below what is needed. Once prices start to extend, the poorest countries are going to be even less ready to pay than they are now. Not making the vaccine affordable for these nations would be morally wrong. It would even be short-sighted, because, as infectious-disease researchers often say, an epidemic anywhere is an epidemic everywhere.