**COVID-19 Vaccines Work. Here’s the Real-World Proof**

It’s one thing to test a vaccine, and another to see it in action in the real world. More than two months after the first vaccines were authorized in the U.K. and U.S., strong data have emerged showing that the shots are doing what they are supposed to do: protect people from COVID-19.

In a study published Feb. 24 in the New England Journal of Medicine, researchers in Israel and the U.S. report that the vaccine made by Pfizer-BioNTech was highly effective in protecting against infection with the COVID-19 virus, lowering people’s chances of getting sick with the disease—especially severe disease—and dropping COVID-19 hospitalization rates. The data, says Marc Lipsitch, professor of epidemiology at the Harvard T. H. Chan School of Public Health and co-author of the paper, are “close to the best possible news.”

In a separate pre-print study published in the Lancet on Feb. 19 that hasn’t yet been peer reviewed, health officials in Scotland also reported that vaccination with either the Pfizer-BioNTech or AstraZeneca shot was helping to lower hospitalization rates due to COVID-19 in the country. Those results were especially encouraging, they said, because they showed that even a single dose of either vaccine was 85% to 94% effective in reducing COVID-19 hospitalization within a little more than a month after the first shot (the recommended dose is two shots of either vaccine).

The findings are a real-world harbinger of what the world can expect as more people get vaccinated and throw up a wall of immunity against the virus. Israel may lead the way in providing hints of where the pandemic is headed. With a unique nationally coordinated system for vaccinating people, and a tight connection between who gets the shots and their health records, the country is a scientist’s ideal study group. In the NEJM study, researchers included data from nearly 600,000 vaccinated people, and compared them to a similarly sized group of people who hadn’t gotten the vaccine. After two doses, the vaccine, it turned out, was 92% effective in preventing infection and, among those who did get infected, 92% effective in protecting against COVID-19 symptoms, 92% effective in protecting against severe disease, and 87% effective in protecting people from needing hospitalization for COVID-19.

The results mirror those found by Pfizer and BioNTech in their late-stage study of 44,000 people, which also showed the vaccine could dramatically reduce the risk of COVID-19 illness, especially severe disease. But having real world data further bolsters that effectiveness data, and could go a long way toward addressing some of the reluctance people feel about getting the shot because it was developed and tested so quickly.

As encouraging as the results are, Lipsitch says they still don’t answer an important question about the protection that vaccines provide: how long that protection, or immunity, lasts. “We still don’t know how good that vaccine is three month out, or six months out,” he says. That’s where the unique situation in Israel may also shed some light in coming months. If similar studies continue, researchers can monitor any changes in vaccinate people’s antibody levels and get an idea of whether protection against the COVID-virus is waning, or remains strong. “There is lots of reason to believe that it’s going to be good based on what we know about immunology and the durability of immune responses to vaccines,” he says. But more data will be needed to confirm that.