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Roughly 90% of older people in Israel have been vaccinated against COVID-19.

ISRAEL IS FIRST TO SEE COVID-INFECTION DROP FROM VACCINES

Immunization campaign shows a way out of the pandemic.

By Smriti Mallapaty

Good news from Israel. Researchers are seeing signs that COVID-19 vaccines are helping to curb infections and hospitalizations among older people, almost six weeks after vaccinations were rolled out in that group.

The country is the first to release data showing vaccines working in such a large group of people, following news two weeks ago that the shots seemed to be reducing infections in vaccinated individuals.

Close to 90% of people aged 60 and older in the country have received their first dose of Pfizer's 2-dose vaccine so far. Now, data collected by Israel's Ministry of Health show that there was a 41% drop in confirmed COVID-19 infections in that age group, and a 31% drop in hospitalizations from mid-January to early February. In comparison, for people aged 59 and younger — of whom just more than 30% have been vaccinated — cases dropped by only 12% and hospitalizations by 5% over the same time. The figures are based on analysis of roughly 250,000 COVID-19 infections.

"What we see here are early and very encouraging signs that the vaccine is working in the population," says Florian Krammer, a virologist at Icahn School of Medicine at Mount Sinai in New York City.

The drop in case numbers and hospitalizations might not be solely down to vaccines, however. In January, the government imposed a nationwide lockdown in response to the country's raging epidemic.

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But Eran Segal, a computer scientist at the Weizmann Institute of Science in Rehovot, Israel, and his colleagues who have analysed the government data say vaccines contributed to the declines in cases and hospitalizations among older people, because the drops were larger and occurred sooner in that age group than in younger people. And the difference in case numbers between people older than 60 and younger people was most pronounced in cities where at least 85% of older people had received their first vaccine dose by early January.

Segal and his team did not observe these trends during the national lockdown in September, before vaccines were rolled out. "All of this is telling us that vaccines are really beginning to have an effect on the national numbers," he says.

But the researchers could not quantify the size of the impact, says Dvir Aran, a biomedical data scientist at Technion — Israel Institute of Technology in Haifa. Nor have they been able to calculate the real-world effectiveness of the vaccine, because they did not have data on cases and hospitalizations among vaccinated individuals specifically, he says. Still, it's impressive that the team was able to "extract information from messy real-world data" to show that vaccines are working, says Aran.

Waiting game

Researchers in Israel had actually expected to see the benefits of vaccinations several weeks earlier, but their distribution coincided with a surge in cases, and the arrival of the potentially highly infectious variants B.1.1.7 and 501Y.V2, which could have cancelled out any potential drop in cases due to the vaccines. "People began to think that maybe the vaccines were not working," says Aran.

But teasing out whether vaccines are causing the decline in cases — or whether the trend is being driven by changes in people's behaviour — is very difficult, says Ran Balicer, an epidemiologist at Israel's largest health-care provider, Clalit Health Services, in Tel Aviv. For example, people who choose to get vaccinated first could also be those who are more cautious.

Aran warns that vaccines should not be seen as a magic bullet. So far, there is no evidence that vaccinated people — about 40% of Israel's total population — are indirectly protecting unvaccinated people. "You need to vaccinate much more than a third of the population to really see a reduction in transmission," he says.

A group of researchers in the United Kingdom has seen early signs that Pfizer's vaccine has contributed to a drop in health-care workers testing positive for the virus. Vaccinated health-care workers were 53% less likely to test positive for SARS-CoV-2 12 days after their first dose than were unvaccinated workers, says Tim Spector, a genetic epidemiologist at King's College London, who presented the preliminary results in an online webinar on 3 February. The analysis was based on about 13,000 vaccinated people and about 33,000 unvaccinated people who reported their results using a phone app. "This is the first sign in real life, outside trials, what the effect is of a single dose," he said.