COVID-19 Vaccines and Herd Immunity

Now that COVID vaccines are available in the United States, how and when will we achieve herd immunity?

March 29, 2021 By Alicia Green

Herd immunity is when a large proportion of people in a community become immune to a disease through either vaccination or prior infection. In the case of COVID-19, achieving herd immunity depends on how many people develop protection after natural infection, how soon COVID-19 vaccines are made widely available to the general public and how many people get vaccinated.

Current research shows that people who have recovered from COVID-19 are usually protected for at least six months after their illness and potentially even longer. Furthermore, COVID-19 reinfection is uncommon, and those who are reinfected are more likely to have a milder version of the disease.

As for vaccines, they help protect people by triggering an antibody response that teaches the immune system to recognize and fight SARS-CoV-2, the virus that causes COVID-19. The vaccines also stimulate T-cell immune responses that may provide longer-lasting protection.

Findings have shown that herd immunity for some diseases can be achieved when about 40% of the population is vaccinated. In the case of highly contagious diseases, such as measles, that percentage is around 95%. The herd immunity threshold for COVID-19 is not yet known, but most experts estimate that 70% to 90% of Americans will need to be vaccinated for the population overall to reach herd immunity.

Three COVID-19 vaccines have been authorized by the Food and Drug Administration: those produced by Pfizer-BioNTech, Moderna and Johnson & Johnson. The two-dose Pfizer and Moderna vaccines are 95% and 94% effective against symptomatic COVID-19 illness, respectively, while the single-shot Johnson & Johnson vaccine is 85% effective against severe COVID-19. No one who received any of these vaccines in clinical trials was hospitalized or died due to COVID-19.

According to the Centers for Disease Control and Prevention, it normally takes two weeks after vaccination for the body to build immunity against SARS-CoV-2. Even people who receive a vaccine must continue to guard against infection until they’re considered fully protected. It is still possible to develop the illness before or just after vaccination because the vaccine hasn’t had enough time to provide protection.

President Joe Biden has directed states to open vaccinations to all adults by May 1. However, fear of and misconceptions about the vaccine may delay herd immunity.

What's more, scientists haven't yet determined how well the vaccines prevent individuals, especially those who are asymptomatic, from spreading the virus to others or exactly how long they protect people.

Recently, Anthony Fauci, MD, Biden's chief medical adviser, said it's still unclear when the United States will achieve herd immunity. Until then, he advised Americans to continue to practice social distancing and wear masks to slow the spread of COVID-19.

The coronavirus moves quickly, especially in communities where people are unvaccinated and don't practice COVID-19 prevention protocols. Fauci stressed that states must vaccinate as many people as possible.

"As we do that, you will see the type of infection, the dynamics of the outbreak, get less and less and less, so whatever that time is—middle of the summer, end of the summer, early fall—we'll be much, much better off than we are now," he told a hearing of the House Energy and Commerce Committee.

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