

Q&A: Will a coronavirus vaccine be a cure-all?

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Global health authorities are frantically pursuing a vaccine against the novel coronavirus in the hope that it will allow everyone to get back to a pre-COVID-19 reality ASAP. Thomas O'Rourke, a professor emeritus

of community health, spoke to News Bureau life sciences editor Diana Yates about how those expectations are probably overblown.

If a vaccine is developed that is effective against the virus, won't that allow us to vaccinate against COVID-19 the way we vaccinate to prevent measles, mumps and other viral infections?

Dr. Anthony Fauci, the director of the National Institute of Allergy and Infectious Diseases, said scientists are hoping for a coronavirus vaccine that is at least 75% effective, but that 50% or 60% would be acceptable. Dr. Stephen Hahn, the Food and Drug Administration commissioner, has said the FDA would authorize a coronavirus vaccine so long as it is safe and at least 50% effective. That means that it will reliably prevent disease in more than half of those vaccinated.

A vaccine certainly will be a game-changer, but not necessarily the "cure-all" that many people envision.

What barriers to widespread vaccination do you foresee?

While [public health experts](#) agree that uniform policies of avoiding large crowds, maintaining social distancing, wearing masks, handwashing, widespread testing and follow-up are essential for reducing the spread of the coronavirus, a significant segment of the American population is ignoring these warnings and even expressing opposition to them. In this kind of climate, I see no reason to expect that vaccination will be universally accepted, either.

Even before COVID-19, opposition to vaccination was already a problem, despite the fact that vaccination is one of the most important public health achievements of the 20th century. For example, influenza

kills tens of thousands of Americans annually and causes millions of illnesses, but less than 50% of Americans get an annual flu shot. While it is likely that millions of people in the U.S. would line up for a safe and effective vaccine, those who think the pandemic is a hoax will likely not participate. Younger adults and others who think they are not susceptible to COVID-19 likely will sit out.

The mixed messages coming from all levels of government and public health officials also confuse the public, which may make some people hesitant to come forward for a vaccination.

Can mandatory vaccination work in the U.S.?

At present, there are no populationwide mandatory vaccinations for adults. Even assuming adequate supply, distribution and the removal of cost barriers to a coronavirus [vaccine](#), I doubt that adequate public compliance will occur. If we have trouble getting the public to wear masks and practice social distancing, it is difficult to imagine that many will accept mandated vaccination.

A lot of people talk about "herd immunity." What is that and how does it work?

Herd immunity occurs when an adequate percentage of a population becomes immune to an infection, whether through vaccination or previous infections. As the proportion of immune individuals in a community increases, the probability that those who lack immunity will come into contact with infectious individuals decreases. Once [herd immunity](#) reaches a certain threshold, the disease gradually disappears from a population.

Herd immunity varies by disease. For measles, 92-94% of a population

must be immune to stop transmission of the disease.

What public health messages will help with compliance?

The best approaches involve messages that are consistent with American values. These include concern for the common good, concern for family and friends, and the importance of personal responsibility.

We need messages that are not only factually accurate but persuasive and relevant, as well as culturally and linguistically appropriate. Our messages should be tailored to specific subpopulations that are at elevated risk. A "one-size-fits-all" approach will not work.

The idea that "if you build it, they will come" might be true for baseball movies and Disneyland, but not for adequate [coronavirus](#)-vaccination compliance. For that, we need effective messaging and broad public support. Building that kind of support will require expertise from behavioral scientists, health communicators and [health](#) education experts to complement the leadership of respected scientists like Dr. Fauci. In the end, it's all about behavior.

Provided by University of Illinois at Urbana-Champaign

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