

How far are we from a vaccine? Assessing current efforts and the challenges ahead

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“I’ve not seen anything like this in my entire career. This is moving at lightning speed,” says Barry Bloom, the former dean of Harvard Chan School. Credit: Kris Snibbe/Harvard

One of the most popular—and highest-stakes—guessing games to

emerge from the coronavirus pandemic is how long it will take to get a vaccine. A Harvard infectious disease expert said on Thursday that how far we are from a vaccine will likely depend on who's asking.

"The question is: Who is 'we'?" said Barry Bloom, the Joan L. and Julius H. Jacobson Research Professor of Public Health and former dean of the Harvard T.H. Chan School of Public Health. If "we" are healthy volunteers willing to be inoculated to see whether an experimental [vaccine](#) works, the answer is that some are already getting it, and more will be enrolled in the coming months. Once an effective solution emerges, hopefully by early next year, it may take another six to eight months to reach priority populations like U.S. health care workers and first responders. Other essential workers, including those toiling for low wages in grocery stores and food production, should not be forgotten, Bloom said.

For still others, particularly those in developing nations, the answer is considerably different.

"If 'we' is a person in Burkina Faso, or Laos, and [they are] expecting to see a vaccine in the next three years, I would be very surprised [if they see it]," said Bloom, who spoke during a Facebook Live event sponsored by The Forum at Harvard T.H. Chan School of Public Health and PRI's "The World."

Complicating the already-tense global COVID picture, Bloom said, has been an increase in nationalism in the U.S. and elsewhere, which is at odds with equitable distribution of scientific gains against the SARS-CoV-2 virus and global health goals. The Trump administration, for instance, [skipped a meeting](#) of global leaders late last month called to get them to commit to distribute any future vaccine in an equitable way and declined this week to attend a fundraising [conference](#) by the European Union to coordinate vaccine efforts. The head of one of the world's

largest vaccine processing operations in India said in a recent media report that any vaccine it produces will go to protect India's population before doses are sent abroad.

Further, increased tension between the U.S. and China over the virus' origins threatens the free flow of scientific information, marked early on by Chinese researchers sharing the viral genome in the pandemic's opening weeks. That spirit of cooperation has been key to the rapid international scientific response to the outbreak, one that has nonetheless been outpaced by the virus' spread. Scientists have been sharing information about the virus and the illness it causes nearly as quickly as the data has become available, Bloom said, flooding the traditional scientific journals with new information and prompting the publication of unreviewed work on preprint servers and even in scientists' Twitter posts.

"I've not seen anything like this in my entire career," Bloom said. "This is moving at lightning speed. Not everything you read is going to turn out to be correct, but at least the information is being shared."

Development of treatments is moving on a parallel track, Bloom said, and the recent findings that the drug remdesivir is effective in lessening illness severity is promising. Bloom pointed out that optimism has to be tempered by the fact that several of those given the drug died and that the virus could still be found in the bodies of those treated. Still, he said, most of those tested were seriously ill, and some believe that giving the drug to patients earlier in the course of their illness may make an even more significant impact. Public health officials have underscored that remdesivir is a treatment, not a cure, and it's possible that its greatest importance may be as a proof of concept that will lead to better therapies.

Until effective treatments or vaccines are widely available, the

predominant tools for government leaders will remain [social distancing](#), [personal protective equipment](#), and other measures already in use. Yonatan Grad, the Melvin J. and Geraldine L. Glimcher Assistant Professor of Immunology and Infectious Diseases, said Thursday that as more localities and states begin to relax social-distancing requirements, it's important we begin to think about what to do when infections resurge, as is expected.

Grad said very little thought is being given to what the reimposition of controls will look like, even though they may not necessarily mirror current practices. That's because, he said, a lot has been learned about what works and what doesn't. He said it's likely that controls could be more targeted and less the "blunt instrument" that widespread social distancing has been during the initial response.

"Can we use more refined measures? Can we combine social distancing of varying kinds with contact tracing, as well as quarantine and isolation?" Grad asked. "Trying to balance the types of interventions we have available to us with the context in which we're seeing a resurgence is going to be critical. ... I think that's an extremely important question, and one that I have not seen well addressed."

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