

Interview TrustTalk Podcast with Harvard Professor at the T.H. Chan School of Public Health, Barry R. Bloom

Intro Voice: Welcome to our next episode of TrustTalk. Our guest today is Harvard Professor Barry R. Bloom. He is a Joan and Jack Jacobson, Research Professor of Public Health, a professor of immunology and infectious diseases, and a former dean of the Harvard T.H. Chan School of Public Health. He is widely recognized for research in the area of fundamental immunology, infectious diseases, vaccines and global health. He served as president of the American Association of Immunologists and of the Federation of American Societies for Experimental Biology. He currently serves on the Governor's Advisory Committee for Covid-19 vaccines in the Commonwealth of Massachusetts. He speaks about the public health challenges to fight the covid-19 pandemic and reflects on the differences with other vaccines developed in the past. Vaccination is not just a matter of implementation, as proper vaccination requires careful planning and monitoring, which is not an easy task. New mutations of the coronavirus lead us into a Darwinian game. Yet he is optimistic that science can produce a new vaccine against the mutations in record time. Differences in the way states and countries have different health systems complicate the effective rolling out vaccinations. Social media complicates even further as there is no vaccine against misinformation. He is concerned that science may be unable to motivate people to change their behaviour with considerable consequences for public health. Your host today, Severin de Wit.

Interviewer: Barry, thank you for being our guest at TrustTalk today. As a professor in public health, you must be very busy these days where the coronavirus, unfortunately, still makes up the headlines and public health is at the centre of public debate.

Barry R. Bloom: I am very preoccupied is that everybody in public health is dealing with this global pandemic crisis.

Interviewer: I read that you quote somewhere "the most important ingredient in all vaccines is trust. Without trust, a vaccine doesn't do much good in the world". So together with your co-authors, Glenn Nowak and Walter Orenstein, you wrote a "Prospective" article in the New England Journal of Medicine calling for a major effort to build public trust in a vaccine. It seems there is a lot of scepticism about vaccines. So where are we in terms of trust in the vaccine?

Barry R. Bloom: I think we're in a very uncertain state that shouldn't be as uncertain as it appears to be. From the very first time in 1796 when Edward Jenner created the vaccine against smallpox, there is scepticism of people about vaccines. Why people have chosen vaccines are for the public health interventions to be sceptical about, it's not clear, but one of the reasons is the effectiveness of vaccines that wiping out smallpox, measles, poliomyelitis, diphtheria is not seen by people because when we do our job well in public health or vaccines, there's nothing to see. We were able to eradicate polio in much of the world. Only now two countries still have polio, partially because people saw children walking around in braces, people dying in iron lungs. We don't see that now. We don't see how effective vaccines have been and there are always doubters that have raised questions in people's minds. The enormous scientific success of rapidly within 11 months going from a new virus no one had ever seen to two vaccines at 95 percent efficacy is so fast that there is distrust in people that science can actually do anything correctly and carefully in that 11 months. And that's a misunderstanding. The science has been spectacularly good because there have been 10 to 20 years of investments in science underlying these vaccines, such that we knew that there was a very good chance that they would be over 50 percent effective, perhaps even more so, and we're very surprised that they are effective as they are.

Barry R. Bloom: These vaccines were not made in a week and no corners were cut. And finally, the approval process has been as rigorous as for any vaccine that is licensed for use in America. 55 thousand people have been in clinical trials, studying their effects versus placebo, studying adverse effects over the time of the trials. That's as large as any vaccine trial for any vaccine that we accept as normal for use. So there are no corners cut and these vaccines are truly remarkable. If people trusted the vaccines, then I think a great many more people would be willing to accept them. But there is doubt at two levels. We don't see people who are dying in hospitals. We only see people who are walking around and not. So it's not the same as in the old diseases. Secondly, we are unfortunately given by social media, a phenomenon vaccines have never faced before, a vast amount of conspiracy theories and misinformation. And a segment of the population doesn't know who to believe a government that is entrusted or social media that is entrusted. So we start in a more difficult position for Covid vaccines and I believe for any other vaccine of which I am aware.

Interviewer: Well, you already answered one of my questions I had in mind about the misinformation. I guess the huge amount of misinformation on social media isn't really particularly helpful, as you just said. But the vaccine has been built as the solution to this crisis. And as you said before, it's an incredible feat of science. But in the end, vaccines are a lot like other public health measures. Their success, I guess, depends on their implementation. And there is much room for improvement, I think. In Europe we seem to be in a PR rat race to see who can hand out the first vaccine shot and who can vaccinate most people in the shortest of time. Where does the US stand in this?

Barry R. Bloom: In almost this terrible shape, as you described, for Europe. There has been a nationalist race between countries for who can make the vaccine first, which from a public health point of view is a totally irrelevant question. What the questions really are is with improved vaccines that are known to be safe, who can produce the vaccines? Who can produce the vials, the stoppers, the syringes, the distribution system to maintain the coaching, the information systems to know who's gotten the first shot, who and when is the second shot to be given and how is that to be organized? And while my colleagues love to say all the things that are wrong, it's very tough to organize 50 states in the US and many countries in Europe, as you know, each of whom have their own public health system, their own governments and policies, and to coordinate that in a way that is highly efficient. These are not easy vaccines to distribute the first two because they require special coaching considerations that require a lot of planning. In just my state alone, there are over three thousand distribution sites.

Interviewer: That's in Massachusetts, right?.

Barry R. Bloom: yes, in Massachusetts. Three thousand sites are being set up for people in every part of the state to be able to have access to the vaccines. This is not a trivial undertaking of challenge of logistics. It would have been helpful if the federal government had done the planning for everybody. They have not. So each state has to do its own planning to a very large extent. And the federal government's main role is getting the vaccines from the suppliers to central storage sites in the states.

Interviewer: Right. It seems very easy to believe that public health is only a matter of implementation, is it?

Barry R. Bloom: It is not. In fact, I love the question. Perhaps the reason I was Dean at the Harvard T.H. Chan School of Public Health, as a critic, as a scientific laboratory critic of public health at the time, I gave a lecture at Harvard entitled "That Is Only a Matter of Implementation", criticizing the public health community for believing that they didn't need to do research, all they needed to do was take pills and vaccines and medicines and get it out somehow to the people. At every stage of this process, we have to learn how to do it better. This will not be the last pandemic. And so there is research required in the States. What that means is we have to know who got the vaccine, what their age is, what their medical conditions are, what their race is. If we are to learn anything about for whom the vaccine works most effective, does it work in older people? Does it work in African-Americans and Latinos? Yes, we can only

do that by collecting information. And I would categorize that not as paperwork, but as learning, research, understanding how to do this job more effectively.

Interviewer: Right. A colleague of yours, Nicholas Christakis, the Sterling Professor of Social and Natural Science at Yale, just recently published a book he wrote during the height of the current crisis called "Apollo's Arrows". I'm not sure whether you are familiar with the book. He writes about public health crises dating back from the plague of Athens in the 4th century before Christ, the Black Death in the 14th century till the Spanish flu of 1918. He puts them in context and speculates on the character of a post-Covid world. Masks and social distancing are here for the long haul, he says, even with an effective vaccine. Is he overly pessimistic?

Barry R. Bloom: I know, he used to be a colleague of mine at Harvard, and it's a very interesting historical perspective on how we fail to deal with and deal with pandemics. The post-coronavirus pandemic world will not be the same. I believe he is absolutely correct on that. I am not confident, however, that any of us is wise enough precisely to predict what that world will look like. The passionate desire of the American people is to get back to the way things were before Covid. And I don't think many of us are optimistic that we will actually get back to that world. That would assume that Covid is completely eradicated. And that is not likely to be the case any more than influenza has been eradicated. It's likely as a respiratory infection, one in a world where not everybody will have access to in many countries or in rich countries where they could get vaccine everybody will choose not to get. But there's no reason to believe this virus will not stay with us for some significant period of time, not as an acute pandemic, perhaps, but something more like the annual influenza. And that might require annual or annual semi or biannual, I'm sorry, semi-annual immunizations to keep it from coming back in great numbers.

Interviewer: You just touched upon that, the race for a vaccine has uncovered, I guess, another challenge for years to come, the inequality between the developed and the developing countries.

Barry R. Bloom: It is in everybody's interest to provide vaccines to the extent humanly possible to everyone on the planet if we want to eliminate this pandemic virus as a global public health problem. Eradication is what we did for smallpox. There is no smallpox except in the freezer in Moscow and a freezer in a plant in the US, the CDC. For every other infectious disease, measles still exists. Pneumonia still exists. Influenza still exists, we have to learn to keep it at bay, and that means constant public health vigilance, constant development improvement and delivery of vaccines. And that's a continuing process. And I

would hope that we do it well for this virus. We will be prepared for the next explosive virus that we can't anticipate what it will be.

Interviewer: Earlier, when asked about the future of public health, you called yourself an optimist, but an optimist in the sense defined by the nuclear physicist Leo Szilard, as "one who believes the future is uncertain".

Barry R. Bloom: I share that view. I'm sceptical of people who look at current numbers and make great predictions of what the world will look like in September or January of 2022. We have very little scientific basis for that. We know a lot about the virus. We know that there are variants of the virus in the UK, in South Africa and now in Nigeria. We do not know why the virus has mutated. We know all viruses mutate. It's a Darwinian game. The virus ambition is to survive and multiply, and our ambition is to dwarf that. And consequently, any virus that has an advantage will take over from the other viruses in the environment. Thus far, it looks like the vaccine produces immune responses that are able to neutralizing the currently known variants.

Barry R. Bloom: It is quite possible a variant will emerge where the current vaccines are less effective. One of the exciting things about the new science is it would take only six weeks, perhaps, to create vaccines to deal with changes in the virus, such as the new vaccines would be protected again. We can keep up with the virus, which has never been possible before in history as the virus changes.

Interviewer: So my final question to you would be, what are the challenges in your area of expertise, the Public Health, at this juncture of time?

Barry R. Bloom: I would say that we are really good at dealing with the science, the molecular biology, the genetic engineering, even for a scientist who's been in this business for 50 years, I find it absolutely inspiring and it really keeps me excited every day. Where we are not so good is the science of human behaviour. Understanding why the first bit of misinformation that we receive of untruths is hard for people to get out of their minds. There is no vaccine for misinformation or disinformation. The question of how to inspire trust, whether through local leaders that are trusted within their communities or national leaders who seem to have little trust in any country of the world, quite different than the circumstances 50 or 60 years ago, we have challenges that science may not be able to deal with. And that's my biggest concern of how to motivate people to change their behaviour, to protect themselves

and everyone else. And at the same time, realize that until everyone is protected against this pandemic, we all remain susceptible.

Interviewer: Professor Bloom, I appreciate you being our guest today at Trust Talk. And I wish you and your family also on behalf of our crew, a healthy 2021.

Barry R. Bloom: Thank you very much for the opportunity and I reciprocate with my best wishes for you, your family and colleagues and your country to be healthy and well and have a Covid free year by the end of 2021.

Intro Voice: We hope you enjoyed this episode of Trust Talk. Don't miss out on future travels around trust and subscribe to this channel or visit us on our website TrustTalk.co or on Twitter [@TrustTalkCo](https://twitter.com/TrustTalkCo). We look forward to seeing you again soon.