

An interview with Yaneer Bar-Yam on Omicron, BA.2 and the ongoing dangers of the coronavirus pandemic: Part 2

Benjamin Mateus
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Professor Yaneer Bar-Yam is an American scientist born in Boston, Massachusetts, who received his Bachelor of Science and PhD in physics from the Massachusetts Institute of Technology. He is the founding president of New England Complex Systems Institute. His research has focused on formalizing complex systems science and applying it to social challenges.

He is one of the founders of the World Health Network, a global coalition of scientists and researchers and community groups that have come together to protect individuals and societies from harm caused by the COVID-19 pandemic. We spoke at length with Professor Bar-Yam in April 2021, at a time when Delta was emerging as a threat to the globe. In the following interview, we continue the discussion on the pandemic and the impact of Omicron during the present global emergency. The interview was conducted on February 21, 2022.

Part one of the interview can be accessed [here](#).

Yaneer Bar-Yam: The primary question that is left to answer, which is super important, I think, is the next structural question—what can we do about it?

We are being told that we must live with the virus because it's "endemic," whatever that means—a term which people are confused by. We've been able to eliminate endemic diseases in the past and endemic doesn't mean we can't eliminate it now or tomorrow. But this obvious truth isn't preventing this incorrect narrative that the virus is endemic and will remain with us. The narrative is also claiming that it's going to remain mild. But we know that it's not mild.

So, what happens is we redefine what is acceptable according to this loss of value of life and of health.

Benjamin Mateus: I think those points are extremely important. I wanted to touch base on what we have recently seen in South Africa, Denmark, South Korea, and Hong Kong with the BA.2 sub-variant. In these countries we are seeing objective evidence of BA.2's severity.

YB: The spreading of BA.2 has particularly started in Europe from Scandinavian regions. But it is growing in the UK, it's spreading around Europe, and it's growing all over it in the US. The recent calculations suggest that BA.2 may become dominant in the beginning of next month [March 2022]. And of course, it's continuing to spread around the world.

[Presently, in Hong Kong, the per capita COVID-19 deaths due to BA.2 are twice the peaks seen in the US from last winter. Almost 85 percent of sequenced cases of BA.2 have been found to have a new mutation, L1221T, on the spike protein. Notably, the elderly population in Hong Kong is also the least vaccinated as a sub-group.]

The case rate for BA.2 will increase. But one of the problems that we're facing right now is that governments are cutting back on testing. This is the "If I can't see it then it's not a problem" approach, meaning we are going to have many unreported cases. There's also an increasing reliance

on home testing in the US that's not being tracked or reported. Someone I know recently tried to report the result of their positive home test but couldn't find a way to do it.

The policies that are being adopted in Europe and the US are really undermining the ability to know even how many cases there are. Absent the information, people will be told that cases are down and feel assured. We have been using case rates as the main measure for evaluating community risk. But that is now becoming a false measure as an increasingly smaller fraction of cases that are taking place are being reported. So that's a serious challenge in how we are engaging with the outbreak.

A large part of the reason for this is that the business interests that have been driving the government response to the pandemic are trying to obscure the danger that is present in the society. There's no doubt that the governments could and should be tracking Omicron and its subvariants like BA.2 because we know that it can be more severe.

Scientifically the imperative would be to track what's happening. The fact that they're not doing so really points to the effort, not only to their claims that the pandemic is over in the sense that they don't want to respond to it as a severe disease, but in fact, to pretend by ignoring it directly, that it is normal. It isn't just wishful thinking. It's willful obscuring of what's happening in the context of this pandemic.

BM: Did you happen to catch a recent podcast with Andy Slavitt, Biden's interim senior adviser on COVID response, and Kristian Andersen, virologist from Scripps Clinic whose work on the origins of the SARS-CoV-2 virus has been followed closely in the media?

YB: Slavitt made an estimate that by allowing the virus to live within communities the expected annual deaths from repeat waves of infection would be on the order of 200,000 to 250,000 at baseline.

BM: Do you know how they obtained that estimate?

YB: It's an [educated] assumption that it's not going to be as bad as it's been, but it's not going to be significantly better because the disease continues to circulate and it's not providing the immunity that has been claimed will achieve herd immunity. Even a naive perspective of what one might expect would not be less than that.

But the truth is that's a very conservative baseline. Given what we know about BA.2 for the next year, given what we know about the rate of mutation, given the fact that there was no reason in the scientific understanding, despite the claims about this, for variants to become less severe ... I mean you could win a lottery if something happens to change the nature of the virus but that's not the way you plan for the future.

As a fundamental statement, the continuous reintroduction of new variants into society undermines population immunity from vaccines and prior infections. We know that's been happening. There's no reason to believe that will stop. In addition, there is the waning of immunity that we

know takes only a few months. And the waning of immunity that would take a few months means that there will be outbreaks every few months even without new variants. And because there's reinfection, because there remain vulnerable people, because the immunity from severe disease is not guaranteed even for people who are vaccinated ... it's protective, but saying that it's protective doesn't mean that it's a hundred percent.

They say it's 90 percent then it's great. Or now it's 80 or 70 percent then it's still great. What they are doing is changing the language. The vaccines have greatly contributed to protecting people. But that is being reinterpreted as if the results mean that there is no harm from becoming infected, which is simply not the case.

And again, all of this, as far as the governments are concerned, says nothing about the long-term disability and the harm that's having to people. It's simply not being put into the calculations because if they put it into the calculations, they would conclude that the 30 to 50 percent of people who are infected, including mild and asymptomatic cases, get Long COVID.

That doesn't mean that every infection will lead to a severe case of Long COVID. But if ten percent are having a severe case of long COVID and four percent of severe and three percent of mild cases are having major cardiac events within a year, we are talking about something that will progressively have major damage to the population. If you're not exercising precautions and you're expecting a significant portion of the population to get infected every few months, this will have a cumulative impact on society.

Because of prior infections, the risk of major cardiac events with subsequent infections will climb because of the impact of the infection. And we haven't even talked about the fact that there's harm to the immune system so that it makes you even more vulnerable.

First, there's auto-immune problems. Second, it makes you vulnerable to other diseases. COVID infection is a *prior condition* for harm from other infections or diseases. When you take all this together, even conservatively, say four to five percent get infected twice a year, we're talking about 10 percent of the population, that's 30 million people in the US. So, we are not just talking about 250,000 deaths.

BM: You might have seen the *New York Times*' piece on Long COVID recently. It was made accessible for the reader to understand the impact COVID can have on the human body. But what really struck me was at the very end of the article they concluded with the following statement which underscores the predicament for millions of people.

They wrote, "Many hospitals now offer post-COVID clinics or recovery programs, which bring together doctors with experience treating Long COVID patients. Given the number of patients, some doctors and programs have long waits for appointments. It can help to plan ahead and try multiple options."

Your thoughts on this?

YB: There is not enough care in the system. Today we have a huge number of Long COVID suffers, but most of the long COVID from the recent Omicron peak hasn't even shown up yet. It's just starting to be observed. And the care that is needed for these millions of people, many millions of people, is way outside the capacity of the health system.

And of course, other people with health issues are not going to get care either under these circumstances. Though hospital beds may not be occupied by the acute COVID cases, they're being occupied by the Long COVID cases, which we are no longer calling COVID because they're not the acute infection that the doctors are counting. All of this is an ongoing prescription for disaster.

What we've done is we've gone from the vaccine-only strategy, which is what we were talking about last summer and it extended into the fall despite Delta, to "vaccines aren't helping" so there won't be any strategy in many countries. This will have a huge impact on the vulnerable population. They have been told they should consider self-isolating, which

doesn't make sense because they're going to get infected by their repairmen and their care providers.

People with prior conditions make up about 50 percent of society. Many millions of people in the population have high blood pressure, or diabetes, even both. This is what vulnerable looks like with regards to COVID. And these people should do what, just disappear and we will keep on living? Those vulnerable people make up half of society. It really doesn't make much sense.

BM: Under Biden we have seen more COVID deaths using the vaccine-only strategy.

YB: No doubt.

BM: And you have his CDC Director Dr. Rochelle Walensky who essentially reduced the isolation guidelines to five days after Delta Airlines CEO suggested it. Even she said the reason for the change was "to keep the critical functions of society open and operating." Then she says if a nurse or doctor has the sniffles then they don't even have to bother to isolate. And soon the mask guidelines are expected to change. Contrasting this, if a patient of mine who has cancer and needs surgery but tests positive for COVID, they must wait two weeks before they can get their surgery.

[The interview with Professor Bar-Yam was conducted on February 21, 2022. On February 25, 2022, the CDC implemented new mask guidelines based on revising the risk of COVID community transmission not based anymore on the levels of community transmission. Instead, they weighed health system status and bed capacity to determine their level of concern. Overnight the US map was transformed into a low- to moderate-risk country. Biden, during his State of the Union address, gave his full support to these unscientific recommendations. And since these developments, essentially every school mask mandate across the country has been or is being repealed.]

YB: Let's talk about this business because it's super important.

First, there's no scientific basis for the CDC's change in isolation policy. The only reason for that policy is that the labor market has been disrupted by COVID infections. They cannot get enough people to do the work. But what happens, as things get worse with more people who become disabled, the problem becomes a self-defeating policy.

Let's be clear on this. What it says is that the disease is severe enough to disrupt society. This is the disruption of the economy. So, for the people who care about economic activity, the fact that the infections are disrupting the economy is ultimately going to have a meaningful impact on them. But in the meantime, they're ignoring the disease, they're ignoring the disability, and they're relying on the fact that people are supposedly well enough to do the work. But that's simply not a sustainable situation.

BM: When you said "meaningful," can you elaborate what this means and which people?

YB: In other words, the business that is wanting to make an income in the current conditions of the pandemic and are trying to move in the direction of a more open economy, the price they have paid since the beginning and will pay, is that it will come back to bite them. When people are sick, disabled, and generally not well, they are unwilling to take these risks. If you were going to end up in a hospital, even for a few weeks, even if you don't die, if you're going to have a severe case, much more severe than the "flu," you're not going to go to that "lunch" meeting, unless it's an important "lunch," or unless you've been deceived by the press and by advertising that everything's okay. But that's not going to last.

There has been a huge push by the commercial press to normalize the circumstances. And this is not a small endeavor. The *New York Times* has consistently published articles that talk about how much risk you should take and their statement about risks is really focused on *one* event, which is very deceiving.

They write, "If you go out and you do something, look, it's not so risky."

There was even a recent Twitter feed that a 30 percent risk of being infected is not so risky. Thirty percent risk of infection is not small if you have a risk of getting Long COVID and having a heart attack in a year's time. Even if you thought 30 percent was small, that's only once. Now, you do it twice, or three times, and so on, you are bound to catch COVID.

So, the point is not that you're going to go to a restaurant once, and this is just one example, but the idea is that you're going to go to a restaurant again and again. And people used to go every day to a restaurant, maybe twice a day for lunch and for dinner. And they supported the restaurant industry. But if you do that you're going to be infected repeatedly, and you're going to be out of it. And if you say you will cut back significantly or plan not to go to restaurants anymore, the economy is not going to do well.

BM: What you mentioned, the risk associated with going out, was made by the department chair of internal medicine at the University of California at San Francisco, which I found utterly ludicrous. He is trying to explain how you can calculate your risk going out.

YB: But no one is doing that because if they did that, they would know better. They would have been infected multiple times by now.

BM: Recent reports have found that the CDC has been withholding important data, important statistics, on the pandemic: wastewater data, breakthrough infections, etc. Can you comment.

YB: I haven't followed the recent news about it, but I know that they're withholding information. And not only that they've been cherry picking the data that they've been releasing. There was a report on Omicron severity that was released by the CDC, which was explicitly not correctly analyzed. The bias in their analysis was manifest from the study in which they were comparing young and healthy people to older and less healthy people to compare severity of Omicron with previous variants.

I haven't seen the recent news story, which I think came out yesterday. I haven't looked at the details, but it doesn't surprise me.

BM: What can we expect from vaccines for children? Also, will we be dependent on boosters? Are we going to see Omicron-specific boosters?

YB: There are trials of the Omicron-specific vaccines and it's not working well. They're not seeing a good response with them. Maybe they will find a way to fix it. The major problem is that the spread and genetic space between the Omicron sub-variants is very large. We already discussed [see Figure 1] that the genetic differences between BA.1 and BA.2 is so large that you wouldn't expect immunity from a vaccine for one for the other.

But even if you look within BA.1, the spread of the different genetic types is huge. And the reason it's huge is because there's just so much virus that continues to mutate. You can do the simple calculation that the number of people that are infected is "linearly" related to the divergence in genetic space.

But it's worse than that because when you have multiple variants there can be hybridization between them. We recently heard about Delta and Omicron combinations called Delta-Cron. But we can have combinations of BA.1 and BA.2 that are different enough that it may have large consequences due to the large possibilities. But the other thing is that the speed of this spread in genetic space is a key part of whether a vaccine that's designed against Omicron can provide immunity from Omicron.

BM: Any word on mucosal or universal-Coronavirus vaccines?

YB: They have been talking about it for a while, but things remain in development still. The US military has been working on creating a vaccine that can recognize multiple spike proteins.

We have people who have autoimmune disease because of the infection with SARS-CoV-2. Why? Because the virus has many different structures from the point of view of our immune system which is fighting to destroy the virus. Some of those structures, proteins, look like our human proteins.

When we have an infection, and our immune cells recognize this piece of the virus. they will also [potentially] attack our body.

When you do more and more boosts as you test more and more vaccines, the chances that you create more and more auto-immune problems increases dramatically. So, as the virus also spreads, it also increases the risk that you may get infected with a virus that has similar enough structures to your body's proteins that it might trigger an auto-immune disease. I mean, they already have done this, but it can get much worse.

And it will increase the difficulty with getting vaccines. You must pick the parts of the virus that doesn't have similar signatures as our body. And that may require much more time and testing to discover.

BM: Before we conclude, can you speak on elimination as a strategy against the pandemic. Is it still viable as many have indicated it isn't?

YB: One of the things that is not recognized, and it really should be, is that this is not a static confrontation also from the point of view of society. It is easier now to do elimination than previously. Technology is improving. Our understanding has grown exponentially. We went from cloth masks to high-quality masks. And high-quality masks have been available, but we realized that we need to use them.

We also understand the airborne nature of the transmission of disease, which means we can improve ventilation. Putting HEPA purifiers everywhere in the society is very low cost compared to what we're suffering. And really that's a tremendously powerful way to fight the virus that's in the air. If we filter the air, we clean the air, then we have much less chance of being infected and there are much more powerful and efficient HEPA air purifiers that are available today.

But the third thing that is available is testing. And up until now, the testing, the ability to do regular testing, was limited. There was supply problems with rapid tests, and there surely were supply problems with PCR tests which are also more expensive.

But now we have a new opportunity in testing called LAMP or Loop-mediated isothermal amplification. It has been successfully used as a detection method with respiratory RNA viruses, specifically SARS-CoV-2. For all practical reasons it is as accurate as PCR tests, much less expensive, and much easier to do.

You can do 10,000 tests per day using one briefcase-size kit of equipment. Most of the equipment is available even in high school labs. It's not complicated. And the training for it is very easy. On the supply chain, the materials are readily available meaning we could ramp up within very short time and do a hundred million lab tests per week easily.

The opportunity that's available is to set this up at the community level. Right now, there are communities in Florida, in Coral Springs, that are using them. Some fire departments are using this for daily testing. And there are multiple other communities that are using this at the daily testing level. And if you do daily testing, we see cases go down.

We've done the calculation. And indeed, if you use LAMP testing for everyone in a community, the cases will go down rapidly, even for Omicron. We could achieve elimination using testing as the major tool. We do have to do daily tasks. You must have a system by which people test whether they do nasal swabs or, even better, a gargle test.

You do a gargle test, spit into a tube, and you put it out for collection or take it to a collection site. The tests are run which take about a half-hour. And if you do them daily, you can rapidly cause cases to go down. You can go down by ten times the number of cases per week. So, in a matter of few weeks, we can be very close to elimination. Once you are close to elimination, you can begin relaxing restrictions.

A lot of the problem has been how to keep infections low. The answer is you can keep it low by doing two tests a week, instead of doing it every day. Meaning you continue testing systematically. With respect to travel restrictions, instead of long quarantine periods, you could shift to daily testing on someone. It doesn't have to be as disruptive.

The costs also go way down by doing this. One LAMP COVID test costs one dollar. One dollar per day per person can help eliminate COVID. If each elementary test is five dollars a test, then you can pool tests for four or five people. Basically, you should do it by households where everyone puts their samples into the same collection. They are run immediately, and the results are turned around rapidly.

It is important that if someone tests positive, they isolate. You cannot do this Mickey Mouse five-day isolation. Ultimately, isolation is the way it is stopped. But then it will go away. And if the whole country adopts this strategy, we won't have to be doing this after a month because COVID will be gone.

The point is that we've been doing this for two years. We've been living with a virus for two years, despite everyone's claim that they're not living with the virus. And now we can eliminate the virus without being locked down. Of course, if you do a lockdown, you simply make sure that you get there faster.

We should at the very least still be using masks and HEPA purifiers. But the point is that the rapid decline of cases and the robustness of getting to elimination is worth it. It's still four to five weeks. The limitation and time are not the testing or the lockdowns. It's the incubation period of the virus that limits us to that amount of time. And unless we got a variant that has a longer incubation period, which would be a more serious disaster, because then we wouldn't be able to protect ourselves, but in the meantime, if that still holds, we should take advantage of it. You get to elimination and it's clearly worth it.

BM: I very much agree.

YB: To summarize, it's gotten easier to do elimination, much easier. We must simply decide to do it, and then we will be in a much better shape.

BM: Every time I speak with you, I feel like I learn so much more. I really appreciate the time you've taken to speak on these issues.

YB: There's one more thing I would say before we close. With the advances that we have now, we do not have to wait for government action. People in a social network, in a local community, can make the decision themselves. And our objective I think, is to really make sure that people and communities are empowered to be responsible for their own health.

Because by taking ownership of their own health, they will not be dependent on people that are not concerned about their health. And unfortunately, today, the people who are in government are not concerned about the health of others even if they're concerned about their own health. The people who are saying that you should go out and take risks are not taking the risks the same way, because if they were, they would be in the health situation that unfortunately many essential workers are.

BM: Thank you again, Professor Bar-Yam.

YB: Take care. Goodnight.



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